

REPORT
OF THE
MINISTER OF AGRICULTURE
FOR THE
DOMINION OF CANADA
FOR THE
YEAR ENDED MARCH 31
1907

PRINTED BY ORDER OF PARLIAMENT



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1907

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REPORT
OF THE
MINISTER OF AGRICULTURE
1906-7.

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, in the County of Northumberland, in the Peerage of the United Kingdom, and a Baronet; Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General of Canada.

MAY IT PLEASE YOUR EXCELLENCY:

I have the honour to submit to Your Excellency a report of the Department of Agriculture for the fiscal year ended March 31, 1907.

I.—GENERAL REMARKS.

A synopsis of the operations of the department and of the various branches thereof which have been efficiently carried out during the past year, ended March 31, 1907, is laid before Your Excellency.

The legislation affecting the department during the session of parliament, 1906, consisted of:—

Chapter 15, 6 Edward VII., intituled ‘An Act to amend the Fruit Marks Act, 1901.’

Chapter 23, 6 Edward VII., intituled ‘An Act to repeal the Act to provide for the collection and publishing of labour statistics.’

Chapter 24, 6 Edward VII., intituled ‘An Act respecting Leprosy.’

And during the past session (1906-7):—

Chapter 6, 6-7 Edward VII., intituled An ‘Act to encourage the establishment of cold storage warehouses for the preservation of perishable food products.’

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Chapter 21, 6-7 Edward VII., intituled 'An Act to amend the Inspection and Sale Act'; and

Chapter 27, 6-7 Edward VII., intituled 'An Act respecting the inspection of meats and canned foods.'

The Right Honourable the Secretary of State for the Colonies, under date the 17th August, 1905, transmitted the following:—

'Extract from the Board of Agriculture to the Colonial Office, dated August 1, 1905.'

'Experience has shown that the existing statutory requirement that all cattle imported into this country shall be slaughtered in wharfs provided for the purpose at the port of landing is no obstacle to the development and maintenance of a large and valuable trade. In the case of Argentine, the number of cattle imported into Great Britain steadily rose from 4,200 in 1891 to 85,000 in 1899, when the trade was interrupted by the introduction of foot and mouth disease in that country. The value of the imports in question was £68,000 in 1891, and £1,392,000 in 1899. During the whole of that period the requirement of slaughter was in force. The case of the United States shows similar results. The number of cattle imported in 1879 was 76,000, with a value of £1,782,000. In 1904 the number imported was 401,000, with a value of £7,160,000. Slaughter at the port of landing was required for the first time in 1879, and has been enforced ever since. The board are glad to observe that similar results are indicated in the case of Canada. The imports during the past two years have been as follows:—

	No of cattle imported.	Declared value.
'1903... ..	190,812	£3,315,762
'1904... ..	146,598	2,547,451

'The highest figure recorded prior to 1892, when slaughter at the port of landing was first required, was in 1890. The imports in that year were 120,469, with a declared value of £1,892,298.

'The existing law does not cast any stigma or discredit upon Canadian cattle, for it holds good not only in the case of the United States and other foreign countries, but also in that of every British colony, including both Australia and New Zealand, whence live cattle have in the past been imported into Great Britain. It is in fact a sanitary law of universal application of great importance to stock-owners at home as a valuable safeguard against the introduction of disease, but not at all inconsistent with the transaction of a large and growing trade, as has already been shown.

'The experience of Argentina in 1900, and more recently of the United States in 1902, has shown how suddenly and unexpectedly foot and mouth disease may make its appearance in a country, quite irrespective of the maintenance of an efficient veterinary organization. In the former case diseased animals were actually imported into this country, and it was only by dint of good fortune and the most strenuous exertions that the infection was kept within the limits of the foreign animals wharfs. A similar result might well have happened in 1902 in the case of the United States, notwithstanding the ability and energy of the Department of Agriculture in that country.

'The enormous losses which British agriculturists have suffered during the last thirty years, mainly by reason of the increased pressure of colonial and foreign competition, make it more than ever necessary that every possible precaution should be taken against the introduction of disease, consistent with the reasonable requirements of colonial producers and the interests of consumers at home. The consequence of the recurrence in Great Britain of epidemics of disease, such as have been experienced in the past, would now be disastrous, and consumers as well as producers would be affected throughout the country. It is therefore in the general interest that no risk

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should be taken which can be avoided by the maintenance of a law which provides a considerable measure of security against the introduction of disease, and at the same time does so without any serious stoppage of trade and without rendering it necessary for any action of an invidious character to be taken in regard to the cattle imported from a particular colony or country.'

Vide *Canada Gazette*, vol. xxxix., p. 473.

The following despatch under date August 31, 1905, addressed to the Officer Administering the Government of Canada, signed by the Right Honourable the Secretary of State for the Colonies, treats upon a subject-matter pertaining to the administration of my department:—

'SIR,—I have the honour to communicate to you, with a view to the attention of traders in the colony being drawn to the matter, the following representations made by His Majesty's consul in Buenos Ayres in a despatch to the Foreign Office, respecting the registration of trade marks in the Argentine Republic.

'Mr. Consul Ross suggests from what has come under his notice, that the importance of registration in the Republic of marks well known and therefore valuable, is not understood or appreciated by British merchants either in the United Kingdom or in the colonies. He states that, according to the Argentine law, it is permissible for any one to register in the Republic a trade mark for one class or for any number of different classes of goods, provided that mark has not already been registered in that country; that the cost of registration, including agents' fees, is about £10, and the time necessary to obtain registration about six weeks, and that registration gives protection for ten years.

'Attention is called to the serious disadvantage which may result from non-registration. A person not necessarily being the real owner of a particular trade mark, but having registered that mark in the Argentine, can lay an embargo on any goods he may find bearing that mark, although such goods may have been made by the original owner of the mark and have been legitimately introduced into the country. An instance is given of the case of a Canadian firm which has been selling for some years under a certain mark, and now finds that it may not import its own goods into the Argentine Republic under that mark because it has been registered by a firm of importers in Buenos Ayres; and so far as the consul can learn, there is no remedy except for the original owners to buy up the local registered owner of the mark, unless the manufacturer is prepared to invent and push another trade mark.

'Registration in the Argentine Republic can be effected by an agent acting under a power of attorney in the form inclosed*, which should be certified to by an Argentine consul; and His Majesty's consul at Buenos Ayres has declared his willingness to furnish the name of a reliable patent agent in that city.

'I have the honour to be, sir,

'Your most obedient, humble servant,

'ALFRED LYTTTELTON.

'The Officer Administering the Government of Canada.'

By order in council of the 22nd of July, 1905, under the provisions of section 29, chapter 11, 3 Edward VII., intituled 'An Act respecting infectious or contagious diseases affecting animals,' the order in council and regulations relating to the disease of *maladie du coït* of July 8, 1904, were rescinded, and the following regulations were established to come into force at once:—

*See *Canada Gazette*, vol. xxxix., p. 631, for inclosure.

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REGULATIONS RELATING TO MALADIE DU COÏT.

Authorized by Order in Council dated the 22nd day of July, 1905, in virtue of 'The Animal Contagious Diseases Act, 1903.'

1. No animal which is affected, or suspected of being affected, with maladie du coït shall be permitted to run at large, or to come in contact with any animal which is not so affected, and no such animal shall, in any case, be used for breeding purposes.

2. Any veterinary inspector may declare to be an infected place within the meaning of 'The Animal Contagious Diseases Act, 1903,' any common, field, stable or other place or premises where animals are found which are affected or suspected of being affected with maladie du coït.

3. No animal shall be removed out of an infected place without a license signed by an inspector.

4. The Veterinary Director General may, from time to time, order the slaughter, castration, or other disposition of animals affected with maladie du coït.

5. Every veterinary inspector shall have full power to order animals affected, or suspected of being affected with maladie du coït to be collected for inspection, and, when necessary, to be detained and isolated or otherwise dealt with in accordance with the instructions of the Veterinary Director General, and no indemnity shall be allowed to the owner in case of damage arising out of or resulting from such actions, except as hereinafter provided.

6. The expenses of and incidental to the collection, isolation, seizure, castration or otherwise dealing with horses for the purposes of these regulations shall be borne by the owners of the animals.

7. No entire horse or ridgling more than one year old shall be permitted to run at large on unfenced lands in the province of Alberta or in that portion of the province of Saskatchewan lying west of the third principal meridian.

8. Any entire horse or ridgling more than one year old found running at large within the area defined above may be seized and held on the order of any duly authorized veterinary inspector of the Department of Agriculture, who shall forthwith whenever possible notify the owner of the said horse of such seizure, and the said horse, if not claimed within thirty days of such seizure, may be castrated, and no indemnity shall be allowed to the owner in case of damage arising out of or resulting from said castration, seizure or detention.

9. Animals affected with maladie du coït may, on an order signed by a duly appointed veterinary inspector acting under special instructions from the Veterinary Director General, be forthwith slaughtered, and the carcasses disposed of as in such order provided, and compensation may be paid to the owners of such animals if and when the Act so provides.

10. Before an order is made for the payment of compensation in any of the cases aforesaid there must be produced to the Minister of Agriculture a satisfactory report, order for slaughter and certificate of valuation and slaughter, all signed by an inspector.

By order in council of the 10th of August, 1905, in virtue of the provisions of section 29, chapter 11, 3 Edward VII., intituled 'An Act respecting infectious or contagious diseases affecting animals,' the following regulations respecting rabies were established, to come into force at once:—

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REGULATIONS RELATING TO RABIES.

By Order in Council dated August 10, 1905, in virtue of 'The Animal Contagious Diseases Act, 1903.'

1. No dog or other animal which is affected with or has been exposed to the infection of rabies, shall be permitted to run at large, or to come in contact with other animals.

2. Any veterinary inspector may declare to be an infected place within the meaning of 'The Animal Contagious Diseases Act, 1903,' any place or premises where the infection of rabies is known or suspected to exist.

3. Veterinary inspectors are hereby authorized to order the slaughter of any dog or other animal affected with rabies, or suspected of being so affected, and to order the disposition of the carcase of such animal.

4. Veterinary inspectors are hereby authorized to order dogs or other animals which have been exposed to the infection of rabies, to be detained, isolated or muzzled.

5. No dog or other animal, nor any part thereof, shall be removed out of an infected place without a license signed by an inspector.

6. Every yard, stable, or outhouse, or other place or premises, and every wagon, cart, carriage, car or other vehicle, and every vessel and every utensil or other thing infected or suspected of being infected with rabies, shall be thoroughly cleansed and disinfected by and at the expense of the owner or occupier in a manner satisfactory to a veterinary inspector.

7. On receiving the report of an inspector to the effect that rabies is known or suspected to exist in any locality, the Minister of Agriculture may order that all dogs, or other animals, within such an area as he may determine or describe, shall be detained, isolated or muzzled during such period as he may see fit.

By order in council of the 26th of August, 1905, in virtue of the provisions of section 5, chapter 41, 4-5 Edward VII., intituled 'An Act respecting the inspection and sale of seeds,' it was ordered that the number of seeds of the weeds named in sections 3 and 4 of the said Act that may be tolerated in any seeds without affecting their character as being, within the meaning of the said sections, free from the seeds of the said weeds, shall be as follows:—

(a) In the seeds of timothy, red clover, alsike and other grasses and clovers, not more than one to every 1,500 of said seeds.

(b) In the seeds of cereals and forage plants, not more than one per pound of said seeds.

Vide *Canada Gazette*, vol. xxxix., p. 474.

By order in council of the 22nd of January, 1906, schedules Nos. 1 and 2, for taking the census of Manitoba, Saskatchewan and Alberta, in 1906, as provided by chapter 5, 4-5 Edward VII., and the schedule for taking the census of manufactures of the Dominion in the same year were approved.

Vide *Canada Gazette*, vol. xxxix., p. 1847.

By order in council of the 16th of February, 1906, in virtue of the provisions of section 17, chapter 41, 4-5 Edward VII., intituled 'An Act respecting the inspection

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and sale of seeds,' the Minister of Agriculture was authorized to make appointments of inspectors and other persons for the enforcement of the said Act.

Vide *Canada Gazette*, vol. xxxix., p. 1786.

By order in council of the 15th of May, 1906, a proclamation was ordered to issue for the taking of the census on June 24, 1906, in the provinces of Manitoba, Saskatchewan and Alberta.

Vide *Canada Gazette*, vol. xxxix., p. 2568.

By proclamation dated May 15, 1906, under the provisions of 'The Census Act,' 4-5 Edward VII., chapter 5, as amended by chapter 6 of the same session of parliament, and according to an order in council (dated May 15, 1906) fixing June 24, 1906, as the day of taking the census in the provinces of Manitoba, Saskatchewan and Alberta, the country was divided into census districts, forms and instructions were approved and directions were ordered to be observed, as set forth in full detail in the *Canada Gazette* of May 21, 1906.

Vide *Canada Gazette*, vol. xxxix., extra issue dated May 21, 1906.

By order in council of June 25, 1906, the resignation of Mr. F. W. Hodson, Live Stock Commissioner, was accepted, to date from June 30, 1906.

By order in council of July 20, 1906, the resignation of Dr. Guy Carleton Jones, assistant physician at the Halifax quarantine station, was accepted, to date from November 30, 1905.

By order in council of July 20, 1906, Joseph J. Doyle, M.D., was appointed assistant physician at the Halifax quarantine station, from December 1, 1905.

By order in council of July 23, 1906, Dr. J. G. Rutherford, the Veterinary Director General, assumed control of the Live Stock Branch, in addition to that of the Health of Animals, it being thought advisable and in the public interest to unite these branches under the control of one head, with the title Veterinary Director General and Live Stock Commissioner, from July 1, 1906.

By order in council of July 23, 1906, in virtue of the provisions of chapter 11, 3 Edward VII., intituled 'An Act respecting infectious or contagious diseases affecting animals,' the order in council approved by Your Excellency on July 10, 1905, was rescinded, and other regulations substituted therefor. (*See* appendix No. 16.)

By order in council of August 1, 1906, in virtue of the provisions of section 29, chapter 11, 3 Edward VII., the following regulations relating to anthrax were made and established:—

REGULATIONS RELATING TO ANTHRAX.

By Order in Council dated August 18, 1906, in virtue of 'The Animal Contagious Diseases Act, 1903.'

1. No animal which is affected with or has been exposed to anthrax shall be permitted to run at large or to come in contact with any animal not so affected or exposed.

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2. Any veterinary inspector may declare to be an infected place within the meaning of the 'Animal Contagious Diseases Act, 1903,' any place or premises where the contagion of anthrax is known or suspected to exist.

3. No animal or any portion or product thereof shall be removed out of any place so declared to be an infected place without a license signed by an inspector.

4. Every veterinary inspector shall have full power to order animals affected, or suspected of being affected with anthrax to be collected for inspection, and, when necessary, to be detained and isolated or otherwise dealt with as may to him appear advisable, and no indemnity shall be allowed to the owner in case of damage arising out of or resulting from such actions.

5. The expenses of, and incidental to the collection, isolation, seizure, or otherwise dealing with animals for the purposes of these regulations shall be borne by the owners of the animals.

6. No animal or animals shall be allowed access to any place where anthrax exists, or has existed, unless by the authority of a veterinary inspector.

7. Carcasses of animals dying from anthrax, or suspected anthrax, must not be skinned, or cut in any way; such carcasses, together with all litter, excreta and other articles, which may have been in contact with them, must be dealt with in accordance with the orders of the veterinary inspector and in a manner satisfactory to him.

8. Premises on which animals affected with anthrax have been kept are to be dealt with at the expense of the owner, in a manner satisfactory to the veterinary inspector.

9. The Veterinary Director General may, from time to time, order the slaughter or other disposition of animals which are affected with or have been exposed to anthrax.

10. Every person who violates any provision of these regulations and every person who refuses or neglects to carry out any order of an inspector or other duly authorized person shall, for every such offence, incur a penalty not exceeding two hundred dollars.

By order in council of August 18, 1906, the invitation extended to the Government of Canada, by the Executive Council of the Irish International Exhibition of 1907, to be held in Dublin, was accepted. Preparations are, therefore, being made for Canada's participation in this event.

By order in council of September 11, 1906, it was deemed advisable and in the public interest that the order in council approved by Your Excellency, under date January 15, 1903, as amended by order in council under date March 30, 1904, by which nursery stock is permitted to enter Vancouver, in the province of British Columbia, from the United States, Japan and Australia from October 15 to August 1, should be further amended by changing the date 'October 15' to 'October 1,' thus making the time permissible to bring in nursery stock between October 1 and May 1.

By order in council of September 21, 1906, it was considered advisable and in the public interest to cancel section 66 of the order in council dated March 30, 1904, containing regulations relating to animals' quarantine, and to substitute the following therefor: 'Inspectors may, if they deem it advisable for purpose of identification, mark animals inspected by them. A certificate of inspection stating the name of the owner, the number, sex and class of animals in the consignment, and certifying to their freedom from contagious disease, will be furnished by the inspector, and must be produced to the collector of customs before embarkation.'

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By order in council of January 14, 1907, the order in council containing regulations relating to animals' quarantine and health of animals approved by Your Excellency on March 30, 1904, was rescinded, and other regulations substituted therefor. (*See appendix No. 15.*)

By order in council of February 8, 1907, the control of the Cold Storage Branch was assumed by the dairy commissioner, Mr. J. A. Ruddick, and these two important branches are now administered by him with the title of Dairy and Cold Storage Commissioner.

By order in council of February 28, 1907, Mr. W. H. Fairfield was appointed superintendent, from August 1, 1907, of the new Experimental Farms station to be established in southern Alberta.

By order in council of February 28, 1907, Mr. Gladstone H. Hutton was appointed superintendent, from August 1, 1907, of the new Experimental Farms station to be established in northern Alberta.

By order in council of March 13, 1907, it was found necessary to amend the regulations approved by Your Excellency on March 3, 1906, relating to the preservation of health on public works, by adding the following subsection to section 5 of said regulations:—

'5a. Such government department or company shall keep displayed in a prominent place, or places, in each and every camp on any such work, one or more copies of extracts from these regulations as prepared and issued in card form for this purpose by the Department of Agriculture.'

Canada's participation in the Milan International Exhibition, held during the past fiscal year, was marked with great success, attracting much attention. A report of this exhibition by the commissioner, Mr. William Hutchison, will be found as an appendix hereto. (*See appendix No. 18.*)

I have also to report that Canada's participation in the New Zealand International Exhibition, held in Christchurch, during the past winter, was also a very great success. A full report of this exhibition will be found in my next annual report.

It is with regret I have to record the death of Mr. Louis D'Auray, on August 10, 1906. Mr. D'Auray had served faithfully in the department since 1872.

I have also to report the death of Mr. Ignace Napoleon Gravel, who died on February 13, 1907, and had been a faithful officer in the department since 1881.

I have also to report the death of J. A. Macdonald, M.D., inspecting physician at the Chatham quarantine station, New Brunswick, who died in December, 1906. Dr. Macdonald had been connected with my department since 1884.

The endeavour to improve the Canadian tobacco industry, referred to in my last two annual reports, has been continued, and I am pleased to be able to report that despite statements to the contrary it may be distinctly and positively asserted that Canadian tobacco possesses first-class qualities, and that the prospects of the tobacco industry in Canada are very bright.

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Appended hereto is a report submitted by Mr. Charlon, the tobacco expert, for the twelve months ended March 31, 1907. (*See* appendix No. 17.)

II.—ARTS AND AGRICULTURE.**DAIRY AND COLD STORAGE COMMISSIONER'S BRANCH.**

The Branch of the Dairy and Cold Storage Commissioner (formerly Dairy Commissioner's Branch) has assigned to it matters relating to dairying, the commerce in fruits, extension of markets for food products and cold storage.

The dairy and cold storage commissioner, who is in general charge of this branch, is assisted by experts in the various divisions.

Mr. J. C. Chapais, the assistant dairy commissioner, devotes his whole time to the province of Quebec, addressing agricultural, fruit and dairy meetings, lecturing at the St. Hyacinthe Dairy School and in connection with the various cheese factory and creamery syndicates in operation throughout the province, &c. Mr. Chapais' address is St. Denis (en bas) Quebec.

While this branch is charged with certain specific duties, such as the inspection of cargoes of perishable products as loaded on the steamers at Montreal and discharged at British ports, the inspection of iced car services, the administration of the Fruit Marks Act, the 'Butter Act, 1903,' the 'Dairy Products Act, 1893,' and the 'Cold Storage Act,' a large amount of the work undertaken by the commissioner and the officers under him is more or less irregular in character and rather difficult to define. Many agricultural meetings are attended during the year; a large technical correspondence is carried on with those who desire information on subjects relating to the work of the branch; special investigations are undertaken from time to time, and a considerable amount of demonstration work is carried on at the fall exhibitions and under other auspices.

PUBLICATIONS.

Since last report, the following bulletins of the dairy and cold storage commissioner's series have been prepared and published:—

No. 11.—General Instructions *re* Fruit Marks Act.

No. 12.—Cow Testing Associations.

No. 13.—Sweet Cream Butter.

No. 14.—Apparatus for determining the percentage of Fat and Water in Butter.

The Report of the Dominion Conference of Fruit Growers was edited and published, and also a report of the District of Bedford Dairymen's Association.

A monthly Fruit Crop Bulletin, compiled from information supplied to the Fruit Division by some 5,000 correspondents, representing every fruit district in Canada, was published from May to October as usual.

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The report of the Dairy and Cold Storage Commissioner will be published as an appendix to this report, and will contain more of the details of the work of the branch as well as other information.

DAIRYING.

The past season has probably been the most satisfactory from the milk producer's standpoint of any in the history of the industry. The yield of milk was on the whole quite up to the average, while the price of cheese, for the season, was the highest ever received.

The manufacturers of cheese and butter have not shared in the general prosperity, because their expenses have increased very largely without any corresponding increase in their revenue. It is unfortunate that the owners of factories should find themselves in this position at a time when there is a demand for improvements in the curing of cheese, the preservation of butter, &c. I am glad to know that the patrons of factories in some sections are beginning to recognize the wisdom of paying a fair price for manufacturing, and have agreed to a substantial increase for 1907, on condition that certain improvements are carried out. When the patrons of cheese factories and creameries—the producers of the milk—come to realize how vitally they are interested in having the business conducted on the best possible lines, many of the difficulties and obstacles which now stand in the way of improvement will disappear entirely.

A very noticeable and satisfactory feature of the dairy situation at the present time, is the increased interest being taken in all matters of sanitation, both on the farm and at the factory.

Apart from the high prices prevailing for dairy produce, and especially for cheese, the most prominent feature of the export trade has been the strong consumptive demand at prices which would have been considered prohibitive a few years ago. The fact is, cheese at 12 to 13 cents per pound is not high-priced compared with the values of other food products.

This strong demand has had the effect of encouraging the export of very green cheese, and there have been some serious complaints on this score, which shippers would do well to take note of.

COOL CHEESE CURING.

The Dairy Division has been charged with the propaganda for the improvement of cheese curing, and the operation of four cool cheese curing rooms by the government for the past five years has been a part of the general scheme.

These cool curing rooms have illustrated the advantages of the system so effectively, that there is now a general movement among the cheese factories to provide cool curing facilities of their own. I have decided, therefore, that it is not necessary for my department to continue the operation of these curing rooms any longer. The one at Woodstock, Ont., and the one at Brockville, Ont., have been leased for a term of years to persons who will use them for the curing and storage of cheese. Negotia-

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tions for the disposal of the other two, one at Cowansville, and the other at St. Hyacinthe, in the province of Quebec, are now under way.

The following letter received by the dairy and cold storage commissioner emphasizes the importance of 'cool cured' cheese to the Canadian cheese trade:—

' 13 GREENWOOD STREET,

' MANCHESTER, December 18, 1906.

' Mr. J. W. RUDDICK,

' Department of Agriculture.

' DEAR SIR,—On going through a line of white and coloured cheese to-day, September made, all western goods, we wanted a few hundred boxes for a very particular buyer. We got him fixed up, but he was not altogether satisfied with the quality, and kept repeating that they were not up to our usual standard. On going to the coloured lots we picked 400 or 500 boxes without turning down a factory, and our buyer expressed the pleasure that it was to have cheese of this kind offered; every lot was as near perfection as you can get cheese.

' On going through the matter to try and find the difference, we at once saw that the coloured had been cured in a government cool curing room at Brockville, while the white had been cured in the ordinary way.

' If any of your farmers had been in our warehouse to-day they would have had an object lesson in the value and importance of having their cheese all done in the same way. In our minds it makes a very much bigger difference than people imagine, and if this way was adopted generally Canadian cheese would hold a very much higher place in the opinion of the trade than it does to-day.

' Yours faithfully,

' (Signed) WALL & CO., LIMITED.

' Manchester.'

DOMINION OF CANADA—Exports of Dairy Products—Home Production.

BUTTER.

Year ended June 30.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Germany.	Other Foreign Countries.	B. N. A. Provinces.	British Indies.
	Lbs.	\$	\$	\$	\$	\$	\$	\$	\$
1868.....	10,649,733	1,698,042	534,707	1,015,702	.....	1,496	14,870	95,777	26,986
1880.....	18,535,362	3,058,069	2,756,064	111,158	.....	.....	24,710	163,290	2,647
1890.....	1,951,585	340,131	184,105	5,059	.....	.....	29,342	119,989	1,636
1891.....	3,768,101	602,175	440,060	10,054	.....	20,447	24,021	101,649	5,944
1892.....	5,736,696	1,056,058	877,455	6,038	.....	5,160	27,207	133,770	6,428
1893.....	7,036,013	1,296,814	1,118,614	7,539	.....	1,175	35,042	127,412	7,032
1894.....	5,534,621	1,095,588	936,422	6,048	1,125	.....	25,560	109,263	14,170
1895.....	3,650,258	697,476	536,797	5,365	.....	* 267	35,028	108,439	11,580
1896.....	5,889,241	1,052,089	893,053	2,729	.....	9,370	34,299	105,472	7,166
1897.....	11,453,351	2,089,173	1,912,389	6,233	.....	8,513	33,490	115,754	12,794
1898.....	11,253,787	2,046,686	1,915,550	3,738	.....	17,574	31,619	51,045	27,160
1899.....	20,139,195	3,700,873	3,526,007	3,984	.....	12,384	41,810	74,813	41,875
1900.....	25,259,737	5,122,156	4,947,000	5,044	.....	7,210	43,176	66,069	53,657
1901.....	16,335,528	3,295,663	3,142,353	5,839	.....	.....	39,675	44,986	62,810
1902.....	27,855,978	5,660,541	5,459,300	41,149	.....	101	36,109	47,066	71,816
1903.....	34,128,944	6,954,618	6,554,014	10,225	.....	13	198,381	69,017	112,968
1904.....	24,568,001	1,724,155	4,400,774	6,497	14	25,644	75,014	88,422	127,790
1905.....	31,764,303	5,930,379	5,568,999	70,580	14,440	.....	113,650	82,387	80,323
1906.....	34,031,525	7,075,539	6,802,003	33,965	4,155	.....	100,048	48,283	87,085
Nine months ended March 31, 1907.	18,078,508	4,011,609	3,805,925	3,539	86,316	56,516	59,313

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CHEESE.

Year ended June 30.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Germany.	Other Foreign Countries.	B. N. A. Provinces.	British Indies.
	Lbs.	\$	\$	\$	\$	\$	\$	\$	\$
1868.....	6,141,570	620,543	548,574	68,784			891	1,594	340
1880.....	40,368,678	3,893,366	3,772,769	114,507			170	5,710	210
1890.....	94,260,187	9,372,212	9,349,731	6,425		370	2,154	12,777	755
1891.....	106,202,140	9,508,800	9,481,373	13,485			1,954	9,104	3,884
1892.....	118,270,052	11,652,412	11,593,690	39,558	2		2,124	12,942	4,091
1893.....	133,946,365	13,407,470	13,360,237	23,578			2,689	18,679	2,297
1894.....	154,977,480	15,488,191	15,439,198	9,552		173	3,036	21,948	14,284
1895.....	146,004,650	14,253,002	14,220,505	5,058		16	5,463	9,785	12,175
1896.....	164,689,123	13,956,571	13,924,672	10,359	299		4,861	7,509	8,871
1897.....	164,220,699	14,676,239	14,645,850	4,486	94	24	5,365	11,954	8,457
1898.....	196,703,323	17,572,763	17,522,681	14,604		1,428	6,889	12,784	14,377
1899.....	189,827,839	16,776,765	16,718,418	17,739			11,701	13,293	15,614
1900.....	185,984,430	19,856,324	19,812,670	4,836			8,774	16,651	13,393
1901.....	195,926,397	20,696,951	20,609,361	37,601	465	12	15,375	16,603	17,534
1902.....	200,946,401	19,686,281	19,620,239	12,038		1,179	14,133	20,100	18,602
1903.....	229,099,925	24,712,943	24,620,004	7,779		170	18,942	21,334	44,714
1904.....	233,980,716	24,184,566	24,099,004	5,386	44		23,810	21,754	34,568
1905.....	215,733,259	20,300,500	20,174,211	14,182	700	364	39,696	35,171	36,176
1906.....	215,834,543	24,433,169	24,300,908	16,082	7,203		52,455	30,992	25,529
Nine months ended March 31, 1907.	178,141,567	22,006,584	21,909,879	6,900		54	38,337	37,748	13,666

TO PREVENT ADULTERATION OF DAIRY PRODUCTS.

A special officer has lately been detailed to enforce the provisions of the ‘Butter Act, 1903,’ and the ‘Dairy Products Act, 1893.’ These two Acts prohibit the adulteration of butter in any form, prohibit the manufacture of ‘process’ or ‘renovated’ butter or any butter substitute, prohibit the marking of ‘dairy’ butter as ‘creamery,’ and provide for the proper marking of skim milk cheese, &c., &c.

I am pleased to say that the Canadian dairy trade has been remarkably free from illegal practices of the kind mentioned, but I am acting on the plan that prevention is better than cure.

OFFICIAL REFEREE OF BUTTER AND CHEESE AT MONTREAL.

An officer of the Dairy Division will be stationed at Montreal to act as referee in case of dispute between buyers and sellers of cheese and butter. The referee will act only on the request of both parties to the dispute. A report of his examination will be given to both buyer and seller.

DAIRYING IN THE NORTHWEST PROVINCES.

The creamery industry is making good progress in northern Alberta. There were reported in operation during the season of 1906, 45 creameries and 4 cheese factories. I am informed that 18 of the creameries are under the control of the Department of Agriculture for Alberta. There were six creameries and 1 cheese factory in Saskatchewan in 1906.

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COW TESTING ASSOCIATIONS.

This work which is being organized under the direction of the Dairy and Cold Storage commissioner, is making very satisfactory progress. I have authorized the commissioner to supply the necessary forms for recording the weights of milk, and to provide men to do the testing free of charge, wherever twenty or more dairymen form themselves into an association, provide their own outfits, consisting of sample bottles and scales, and where the association agrees to provide a place in which the testing may be done without cost to the department. One man can do the testing for five or six associations. The number of associations already organized in the different provinces is as follows: Ontario, 19; Quebec, 25; Nova Scotia, 2; Prince Edward Island, 1; British Columbia, 4. In addition to these 51 regularly organized associations, there are hundreds of individual farmers who have been induced to keep records and test their own herds.

I am pleased to learn that the farmers of Canada are beginning to realize the great possibilities which lie in this direction. The records which have been obtained already show wide variations in the yield of milk from cows of the same breed in one herd, in the production of different herds in the same locality, and in general average of different sections of the country. There is no reason why the yield of milk from all herds may not be brought up to the standard of the best by a careful study of the individual cow and a systematic course of selection and breeding. The experience of many farmers in Canada and in other countries proves how easily such improvement may be made.

The first necessary step is to acquire an accurate knowledge of the production of each cow in the herd. This can only be secured by regular weighing and testing of the milk of each animal.

FRUIT.

THE FRUIT MARKS ACT.

The administration of the Fruit Marks Act occupies a good part of the time and attention of the Fruit Division during the active shipping season. The staff of inspectors was increased for the season of 1906-7 by the appointment of four new men, and the number of packages inspected was largely in excess of any previous year. I am pleased to report, however, that although the inspection was more severe, and covered a larger quantity of fruit, the violations of the Act showed considerable decrease. The number of prosecutions for 1906-7 was 37, against 48 convictions in 1905-6. Some of the fruit inspectors are employed during a part of the year in attendance at orchard meetings, giving demonstrations in spraying, pruning and grafting, &c. A great deal of valuable information has been imparted in that way.

FRUIT CROP REPORT.

The publication of a monthly fruit crop report appears to have met favour with the fruit trade throughout the Dominion, and its publication will be continued. Reli-

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able information concerning the fruit crop prospects is of value to both grower and dealer, and helps to prevent manipulation of the market by means of false reports.

DEMONSTRATIONS IN BOX PACKING.

The results of the demonstrations in box packing which were given in 1905, proved so satisfactory that it was deemed advisable to continue the work another season. I am informed that there is a very marked improvement in the style and effectiveness of box packing since these demonstrations were first undertaken.

A bulletin on the subject is now in course of preparation, and it will be distributed as soon as it is received from the printer.

CANADIAN APPLES IN GREAT BRITAIN.

Very encouraging reports are being received from Great Britain concerning the trade in Canadian apples. Prices for Canadian apples have ruled from two to five shillings per barrel higher than for the same varieties from other countries. Greater confidence in the packing and grading has helped to bring about this satisfactory result.

The outlook for the Canadian orchardist seems to be encouraging.

CANADIAN APPLES IN SOUTH AFRICA.

Some shipments of apples to South Africa are reported as having turned out very well, and a promising trade appears to have been opened in that direction. The Canadian commercial agent in South Africa reporting on one of these shipments uses the following words:—

‘A cargo of apples by the steamship *Melville* from Montreal arrived here on December 4, and came to hand in excellent condition. The fruit met with a very ready sale at highly remunerative prices for the importers.’

COLD STORAGE.

ICED BUTTER CAR SERVICE.

The arrangement with the railways for the operation of an iced butter car service has been continued over fifty-seven different routes to Montreal during the season of 1906, effective May 7 to October 20. The service is now extended so as to reach practically every creamery which ships butter for export. My department will continue to guarantee two-thirds of the earnings of a minimum car at carload tariff rates plus \$4 for icing, the shippers to be charged the regular rate for shipment of butter in any quantity from the different stations along line over which the car is operated.

ICED CHEESE CAR SERVICE.

The iced cheese cars are provided on a somewhat different basis. The department agrees to pay for the icing charges to the extent of \$5 per car for a limited number of

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cars per week on the various lines for the shipment of cheese in carloads. These cars do not pick up way shipments, but will only be supplied by railways, on demand of shippers, for a carload at one station. This arrangement was effective July 2 to September 8, and 1,161 cars were supplied during that period.

ICED CARS FOR FRUIT.

For the first time, in 1906, the Department of Agriculture agreed to pay icing charges to the extent of \$5 per car for the shipment of apples in carloads consigned to Montreal and Quebec for export. This arrangement was effective August 1 to September 30, and will likely be continued another season. The records show that 102 cars of fruit were shipped under this arrangement.

COLD STORAGE AT CREAMERIES.

The plan of giving a bonus of \$100 to every creamery which builds a cold storage according to plans and specifications supplied by the Dairy and Cold Storage commissioner was continued for the year 1906. A total of 56 applications were received for this bonus, but out of this number only 26 applications were approved of for payment, the others having failed to comply with the necessary conditions.

The bonus is paid only once to a creamery in any locality. Should the creamery building be burned or a new one erected to replace the old one, the bonus is not paid a second time.

COLD STORAGE ON STEAMSHIPS.

There is now ample cold storage accommodation for all classes of perishable produce offered for shipment across the Atlantic from Canadian ports. Several new steamers with modern cold storage equipment were added to the Montreal and Quebec services during the past year.

THERMOGRAPHS IN STEAMSHIPS.

A factor that has contributed very largely towards the marked improvement that has been shown each year in our ocean cold storage facilities is the use of the self-registering thermometer, called the thermograph. The department first made use of these instruments in the season of 1900 when thirty (30) thermographs were purchased. Each year since the number has been increased, so that in the season 1906-7 the department had one hundred and eighty-two (182) thermographs in commission, using them not only in steamship chambers and holds but in refrigerator cars and in creamery cold storages as well. In steamships alone five hundred and fifteen (515) records of temperatures were obtained, namely, four hundred and sixty-one (461) records in steamers sailing from Montreal and Quebec, and fifty-four (54) records in steamers sailing from Halifax.

The thermographs, which are encased in locked boxes perforated so as to admit the air, are stowed with perishable cargo in refrigerator chambers, cooled air chambers and in the ordinary holds. When the ship reaches port in Great Britain, the cargo

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inspector for this department removes the thermographs just as soon as they become accessible. He takes off the charts, which are numbered to correspond with the numbers of the thermographs, and mails them at once to the Chief of the Markets Division at Ottawa, together with a memo. giving the name of the vessels, date she arrived, and time thermographs were removed. When the charts are received here such particulars as the steamer's name, sailing date, port of destination, date of arrival, date thermograph was placed, where it was placed in the ship, kind of produce it was stowed with, &c., are written on the face of each chart, and six photographic copies are made, two of which are retained in the office here, one sent to the Montreal Board of Trade, one to the steamship agents, one to the chief engineer of the steamer and one to our Montreal office.

These records indicate every variation of temperature each day of the voyage, and are of great assistance to the engineer in charge of the ship's refrigerating machinery, who studies them carefully, and, if any unusual variation is shown, endeavours to find out the cause so that the same thing may not occur on succeeding voyages. The engineers are, therefore, very keen to get these records, and as soon as they reach Montreal on each return voyage they at once look for their copies of the temperature records secured on the outward voyage.

SUBSIDIES FOR COLD STORAGE WAREHOUSES.

With a view of encouraging the erection of public cold storage warehouses, in districts not now provided with such facilities, parliament was asked, during last session, to authorize the payment of certain subsidies to persons erecting such warehouses equipped with mechanical refrigeration. The requirements of trade in certain localities have made cold storage an absolute necessity, and in such places the revenue is sure enough to make the investment a fairly safe one; but there are many districts in Canada where some inducement is required to secure the investment of the capital necessary to equip and maintain a cold storage warehouse.

There is no intention of giving a subsidy to any business which will go into direct competition with others already established. While it may at first glance seem a little unfair to assist the new enterprises, even if non-competitive, it must be borne in mind that the existing cold storage warehouses occupy the choice locations, and for that reason some inducement seems to be necessary if similar facilities are to be provided in other localities. The full text of the Cold Storage Act is as follows:—

THE COLD STORAGE ACT.

An Act to encourage the establishment of Cold Storage Warehouses for the preservation of perishable Food Products.

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as *The Cold Storage Act*.

2. The Governor in Council may enter into contracts with any persons for the construction, equipment and maintenance in good and efficient working order, of

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public cold storage warehouses equipped with mechanical refrigeration, in Canada, and suitable for the preservation of all food products.

3. The location, plans and specification of every such warehouse, its equipment, and the amount to be expended thereon, shall be subject to the approval of the Governor in Council.

4. The Governor in Council may, out of any moneys appropriated by parliament for the purpose, grant towards the construction and equipment of any such warehouse a subsidy not exceeding in the whole thirty per cent of the amount expended or approved of in such construction and equipment, and payable in instalments as follows: upon the warehouse being completed and cold storage at suitable temperatures being provided therein, all to the satisfaction of the Minister of Agriculture, a sum not exceeding fifteen per cent of the amount so expended; and at the end of the first year thereafter seven per cent of the said amount, at the end of the second year thereafter four per cent of the said amount, and at the end of each of the two next succeeding years two per cent of the said amount: provided the warehouse is maintained and operated to the satisfaction of the Minister of Agriculture.

5. The Minister of Agriculture may refuse to pay any part of the said subsidy if, in his opinion, the operation of the warehouse has not been of such a character as to provide for the proper preservation of such products as may be stored therein.

6. The Minister of Agriculture may order, and cause to be maintained, an inspection and supervision of the sanitary conditions, maintenance and operation of such warehouses, and may regulate and control the temperatures to be maintained therein in accordance with the regulations to be made as hereinafter provided.

7. The rates and tolls to be charged for storage in such warehouses shall be subject to the approval of the Governor in Council.

8. For the effective carrying out of the provisions of this Act the Minister of Agriculture may appoint inspectors, who shall have access to all parts of such warehouses at all times.

9. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient enforcement and operation of this Act; and he may by such regulations impose penalties not exceeding fifty dollars on any person offending against them; and the regulations so made shall be in force from the date of their publication in *The Canada Gazette*, or from such other date as is specified in the proclamation in that behalf.

10. Chapter 7 of the statutes of 1897, intituled *An Act respecting Cold Storage on Steamships from Canada to the United Kingdom and in certain cities in Canada*, is repealed.

EXTENSION OF MARKETS.

During the past year the Extension of Markets Division has been principally engaged in looking after the transportation facilities for our export food products, with, I am pleased to be able to say, gratifying results. During the summer months a closer inspection was maintained over the refrigerator car services for butter, cheese and fruit, and, as a consequence, these services were operated in a more satisfactory manner than ever before. Careful attention was also paid to the handling of our food products received at the loading ports, and rough work was as far as possible suppressed. The loading of these products in the steamers, the ventilation of the holds in which they were stowed, the temperatures maintained in the cooled air and refri-

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generator chambers, the unloading at ports of discharge in Great Britain, &c., were carefully noted by a staff of trained men, and any defects in the service or complaints *re* handling or stowage were promptly brought to the attention of the steamship companies concerned. Every cargo of perishable products, whether large or small, carried from the ports of Montreal and Quebec (and in the fall and winter months from St. John and Halifax) had an inspector in attendance while loading was going on, and also at the ports in Great Britain while these cargoes were being unloaded.

In addition to the work outlined above, the Markets Division has had considerable correspondence with firms in Great Britain and other European countries seeking to establish business relations with shippers of Canadian farm and food products. In each case the desired information was duly furnished, and at the same time, the inquiries were brought to the notice of the interested parties in this country.

By my direction, the Chief of the Markets Division was engaged, from June 13 to August 16, in an investigation of the meat-packing establishments in Canada, in order to ascertain the conditions under which this industry is carried on. The report submitted, I am pleased to say, showed that the meat-packing industry in Canada is on the whole free from objectionable practices, and is conducted in a wholesome and cleanly manner.

CARGO INSPECTION AT MONTREAL AND QUEBEC.

During the greater part of the season of navigation seven cargo inspectors were employed at Montreal and Quebec, and furnished reports on each cargo of foodstuffs shipped from these ports. Although these cargo inspectors have no legislation behind them, and are not, therefore, in a position to order this or that to be done, their work, nevertheless, is carried on with the sanction and approval of the steamship companies, who recognize that, in the long run, it is for the good of their business as well as for the good of the country at large. Occasionally some slight friction occurs, but in the main the relations existing between the inspectors and the dock superintendents and other steamship officials with whom the inspectors are in daily contact, are entirely harmonious.

The greatest difficulty our inspectors have now to contend with is rough handling by the teamsters who draw the butter, cheese, apples, &c., from the railway cars or warehouses to the docks. These men are only anxious to get rid of their loads as quickly as possible, and unless they are continually watched they will unload boxes of butter or cheese or barrels of apples with as much unconcern and lack of care as if they were handling pig iron. Our inspectors check them as much as possible, but they cannot always be on hand when the teamsters are unloading, as their duties frequently call them to other parts of the shed or into the holds or chambers in the ship. This season, however, the inspectors have been instructed to pay particular attention to this phase of their work.

STEAMSHIP COLD STORAGE SERVICES FOR BUTTER.

During the season of navigation of 1906, the cargo inspectors at Montreal tested the temperatures of 1,751 packages of butter as these were being loaded into the

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steamers. After taking the temperatures, each package was marked so as to enable the inspector at the port of discharge to get the temperature of the same package as soon as it was unloaded from the steamer. The temperatures of each have been averaged for the season, and the results are given in the report of the Dairy and Cold Storage Commissioner's Branch for the year ended March 31, 1907.

On the whole, the cold storage services for butter provided in 1906 by the steamship lines plying between Montréal and the ports in Great Britain were eminently satisfactory, and amply justify the boast that as an all around proposition the ocean cold storage service between Canada and the Motherland is now the best in the world.

INSPECTION OF ICED CAR SERVICES FOR BUTTER, SEASON 1906.

The special iced car service for butter operated by the different railway companies under an arrangement with this department was commenced on May 7 and closed on October 21, cars being operated over sixty-one different routes. This was a considerable extension in the service compared with 1905, when the number of routes was fifty-one. Five inspectors were employed during the season as follows: Two at Montréal, two travelling over the iced car routes in Quebec, and one over the routes in Ontario. The duties of the inspectors were to report the conditions under which the butter was hauled from the creameries to the railway stations, the temperature of the butter when loaded into the cars, the condition in which they found the cars, and whether they were well iced or not. The inspectors at Montréal examined the butter arriving in the iced cars and reported the temperature and condition of the butter, the condition of the cars, quantity of ice remaining in the bunkers, &c. They paid particular attention to the packages that had been tested and marked at the shipping points by the travelling inspectors, making a note of the temperatures as soon as these packages were unloaded from the cars. Full particulars of these temperatures will be found in the annual report of the Dairy and Cold Storage Commissioner's Branch.

SEED COMMISSIONER'S BRANCH.

The operations of this branch of my department were started seven years ago. It is gratifying to know that they have been well and widely appreciated by both farmers and seed merchants. The work has rapidly increased, and during the past year has continued largely educational. More than 20,000,000 acres of our agricultural lands are now under field crops. The average annual yields, and the quality of those crops, although fairly satisfactory, may be substantially increased and improved by the application of better practices in farming, in which the production and use of seed grain and other seeds are important factors. The results of research and experimentation with farm crops make clear the advantages that are to be derived from the use of fully matured, sound and selected seed in increased yield and improved quality of all kinds of crops. The growing and selecting of those seeds is a special industry in farming deserving of much encouragement.

The great bulk of our field crop seeds are homegrown. Grass, Indian corn and root crop seeds are the principal field crop seeds imported into Canada. Alsike and

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red clover seeds are largely exported. A comparatively small proportion of the seed grain used by farmers enters into commerce. The trade in seeds consists chiefly in the distribution and sale of grasses, clovers, ensilage corn, root crop and garden seeds.

Genuineness of type and variety are essential factors in the quality of most farm seeds, a definite knowledge of which can be obtained only from careful inspection of the crops which produce them. In obtaining supplies from seed merchants, farmers and gardeners must depend largely on the ability and integrity of those from whom they purchase. They may have such seeds tested for purity from weed seeds or percentage of vitality, free of charge, by sending a small sample to the seed laboratory in my department.

THE SEED CROP OF 1906.

The acreage of land under cereal crops grown especially for the purpose of seed was never larger in Canada than last year. The plans adopted by this branch to encourage farmers to set aside ten acres or more of their best and cleanest land, on which to grow pure seed grain and allow that grain to become fully matured before harvesting, have met with a great deal of success. Large quantities of excellent grain were last year carefully harvested and preserved for seeding.

With the exception of red clover, the grass and clover seed crop of 1906 was of a good average yield, and of a quality better than in former years. Perhaps on account of the application of the Seed Control Act, larger areas of clean land were devoted to the growing of clover seeds; their production on land foul with weeds has been discouraged. The 1906 crop of red clover seed was a partial failure due to winter killing and the ravages of the clover seed midge, consequently large quantities of Chilian and English grown seed are this year being imported. With the importation of such seed there is always danger of the introduction of new species of pernicious weeds. Some benefits will, however, doubtless accrue from this importation of red clover seed, since the type of clover plant grown in the countries from which the seed is imported is thought to be better than that grown in Canada.

Much attention has been given during the past few years to the production of seed corn of types suitable for ensilage purposes throughout the dairy districts where corn is not grown for the purpose of seed. In this work the operations of the Seed Branch have been directed chiefly in the corn-growing districts in the province of Ontario. The difficulty in past years has been largely that of maintaining purity of type and variety and in preserving the vitality of the seed by proper storage.

Much loss has been caused in the eastern provinces of Canada, by an insidious disease in the potato crop, commonly known as the potato blight. This disease affects the potato top and destroys the plant's vitality before it is naturally matured, thus rendering the product less palatable as a food in addition to greatly decreasing the yield. To lessen this difficulty, educational work has been undertaken, looking to the introduction and selection of disease-resistant types and strains of potatoes. Enough has been done in an experimental way to firmly establish the correctness of this plan. It is intended, as far as possible, to secure the general application of the practice throughout the districts where the blight is causing serious injury.

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The limited control of the trade in certain agricultural seeds, through the application of the Seed Control Act, has occupied the careful attention of the officers of the Seed Branch. The purpose of the Act, in the main, is to supplement educational work, by providing the means so that purchasers of seeds may buy intelligently, and protect themselves against the carelessness or designs of unscrupulous seed vendors. The evil connected with the seed trade that is principally dealt with in the Act is the distribution of the seeds of pernicious weeds. The provisions of the Act are necessarily somewhat technical, and its administration has been largely directed with a view to secure among seed vendors and farmers a clearer understanding of its provisions and a better appreciation of its objects. The work of seed inspection under the Act has been proceeded with vigorously, and has had a marked influence in improving the quality of seed grain and of grass and clover seeds offered in the retail trade.

It is gratifying to find, from the data compiled in the seed laboratory during the last five years, that there has been a marked improvement in the condition of the seed trade throughout Canada. There can be no doubt that this improvement has been brought about largely through the educational work instituted by my department, which has led to a rapidly increasing demand on the part of farmers for pure seed grain and other seeds of the best quality. The progress that has been made in improving the quality of the grass and clover seed produced has been less rapid, because of the expense for the labour necessary to keep weeds under control once they have become established.

WEED SEED COLLECTIONS.

With a view to enable merchants, in the conduct of their business as seed vendors, to purchase their supplies intelligently and protect their customers against the seeds of pernicious weeds, authentic collections of weed seeds are prepared in the seed laboratory, for distribution, at the nominal price of \$2, to seed merchants and agricultural institutions. With one of these collections in his possession, a seed merchant is able to identify the noxious weed seeds in the seed he may purchase for sale. In all, 353 of these collections have been supplied to seed merchants and agricultural institutions, of which 125 were sold to seed merchants during the last twelve months.

PUBLICATIONS.

Since the work of testing seeds for farmers and seed merchants was undertaken and the seed laboratory established, many applications have been received from farmers and others for a bulletin which would contain illustrations of the weeds, the seeds of which were reported to be present in the samples sent for test. There are many kinds of weeds in Canada, but comparatively few species of them are to be found in any one locality. As a rule, it is not until new kinds of weeds become well established on their lands that farmers have an accurate knowledge of their nature. They then have of necessity to acquire a knowledge of effective methods of combating them. It was to provide this information and the means to identify noxious weeds that I authorized the preparation of a bulletin on 'Farm Weeds.' This bulletin has been prepared under the immediate direction of the seed commissioner, and is now about ready for distribution. It contains accurate reproductions of water-colour drawings of fifty-one of the

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worst Canadian weeds and their seeds. Twenty-five thousand copies of the bulletin have been ordered. It is my intention to have them equitably distributed, free of charge on personal application, for use as a reference book in the libraries of farm homes and rural schools.

A timely bulletin on the stinking smut of wheat, containing information as to methods of treating seed wheat to destroy the smut, was issued and distributed during February last. This bulletin was made specially applicable to the conditions of the wheat-growing sections of the western provinces.

A bulletin was issued containing a list of seed vendors who had violated the provisions of the Seed Control Act during the past year; also a circular containing information about the testing of seeds and the condition of the seed trade.

A special bulletin, giving the results of competitions in standing fields of seed grain that were organized and conducted during the past year in the three western provinces, was prepared and distributed throughout the provinces of Manitoba, Saskatchewan and Alberta.

ENCOURAGEMENT IN SEED GROWING.

The Seed Branch has continued to co-operate with the Canadian Seed Growers' Association, by having each of the farmers who make a speciality of growing and selecting seed visited at least once a year, for the purpose of inspecting their operations and of giving expert instruction in the matter of growing and selecting seeds of the various kinds of crops; also with the provincial departments of agriculture in instituting and conducting summer meetings of seed growers, which were held during the months of June and July at the time when weed and other plant growth was most in evidence.

In the western provinces competitions in standing fields of seed grain, of not less than ten acres, were organized and conducted under the auspices of the local agricultural societies. For these competitions expert judges were provided by my department. In all, forty agricultural societies in the provinces of Manitoba, Saskatchewan and Alberta availed themselves of the services which my officers were able to render them, and of the generous support of the provincial departments for Saskatchewan and Alberta, which provided money grants for prizes.

The interest that has been shown by local agricultural organizations in all parts of Canada in the matter of holding annual spring seed fairs has materially increased. In all, sixty-eight have been held during the past year, which my department was able to render assistance to in advertising, providing expert judges and lecturers, and by other means. With some few exceptions, all of the seed fairs that have been organized have continued from year to year, and have materially increased in interest to the farmers and in benefit to the community where they are held. In almost every instance there has been a notable improvement in the quality of the seed grain and other seeds that have been brought out and exhibited for sale.

The Seed Branch is so organized that experts in seed growing and inspection are provided in each of the various districts or provinces to carry out the details

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of the general work of the branch. These district superintendents give their whole attention to the work in the districts assigned to them.

SEED LABORATORY.

Six thousand six hundred and seventy-six samples have been tested in the seed laboratory for purity or germination or for both during the past year. These samples were for the most part received during the fall of 1906 and the spring of 1907, from seed merchants and farmers. The number of samples of seeds sent in for test was somewhat lessened by a circular on seed testing issued by the seed commissioner to farmers and seed merchants, calling their attention to the fact that:—

‘While the seed laboratory at Ottawa is equipped with the best modern apparatus for seed testing, and a staff is maintained during the busy season of the seed trade sufficient to make from 150 to 200 tests per day, it is necessary to have the work conducted under regulations, so that equitable service may be rendered to all concerned. In general, prompt attention will be given to the first fifty samples sent in for test from wholesale seed houses and to the first ten samples sent in for test by retail seed merchants.

‘Requests should not be made for germination tests of seeds—particularly of timothy, alsike and red clover seeds—unless the information is really needed. Germination tests may not be made of timothy, alsike or red clover seeds, when the purity tests show that they will not grade No. 1, as provided in section 4 of the Seed Control Act, unless the seed shows evidence of being damaged or otherwise has the appearance of being of low vitality. It is quite well known that these, as well as many other kinds of seeds when fresh and of good healthy appearance, can be relied upon in respect to their germinating qualities. This request is made of seed merchants in order that the staff in the seed laboratory may be better enabled to render prompt and efficient service to all who desire to have seeds tested during the busy season of the seed trade, in supplying information that is needed by them in the conduct of their business as seed vendors.’

The information given in the reports issued from the seed laboratory seems to have been better appreciated by the sender of the sample than heretofore.

The samples tested have been divided into three classes: 1st, those tested for seed merchants and farmers; 2nd, samples tested under the Seed Control Act; 3rd, samples tested for the purpose of investigation. The following table gives a summary of the kinds of seeds tested for farmers and seed merchants, and shows the provinces or districts from which they were received:—

Name of Seed.	Maritime Provinces.	Quebec.	Ontario.	Western Provinces.	Foreign.	Total.
Timothy.....	49	184	240	11	17	501
Alsike.....	17	102	267		1	417
Red clover.....	32	262	507	1	1	803
White clover.....	4	49	5			58
Alfalfa.....			15	1		16
Mixtures of clover and grasses.	2	5	14			21
Grasses.....	1		7	11	2	21
Cereals.....	6	27	60	38		131
Roots and vegetables.....	2	5	324	93		424
Flowers.....			25	192		217
Other kinds.....	1		21	3		25
Total.....	144	634	1,485	350	21	2,634

Under ‘grasses’ are included Canadian and Kentucky blue grass, orchard grass, and fescue. ‘Cereals’ include wheat, oats, barley, rye, buckwheat and corn. ‘Other kinds’ of seeds include vetches, tobacco, and flax.

The seed laboratory which was established at Calgary at the commencement of the present calendar year has greatly reduced the number of samples sent to Ottawa from the western provinces. The work of seed testing conducted at Calgary is under identical regulations with those which obtain at Ottawa, and the reports are issued on the same forms. The reduction in the work that has followed the establishment of the seed laboratory at Calgary has materially lessened the pressure of work in the central laboratory at Ottawa, and in that way has rendered my staff at both laboratories better able to render prompt and efficient service. Nearly all reports on seed sent in for purity test have been issued within three days of their delivery at the office of the seed commissioner.

Out of the total number of samples received for test, more than seventy species of more or less noxious weed seeds were found. The species of weed seeds that are found to predominate in cereals, grasses and clovers are: Catchfly, Curled dock, Rib-grass, False flax, Canada thistle, Ragweed, Foxtail, Sorrel, Lamb’s quarters, Chick-weed, Cinquefoil, Black medick, Wild oats, Purple cockle, Cow cockle.

A few species of weeds, new in Canada, have been introduced during the past year in imported clover seeds. These, however, may not be harmful in our climate.

SAMPLES TAKEN UNDER THE SEED CONTROL ACT.

Sixty-one samples of seeds were sent in for official test by my inspectors who operate under the Seed Control Act. They were as follows:—

—	Timothy.	Alsike.	Red clover.	Mixtures.	Cereals.	Total.
Ontario.....	1	2	9	3	10	5
Quebec.....	3	.....	3	2	17	25
New Brunswick.....	.....	1	5	1	.....	7
Nova Scotia.....	2	.....	2	.....	.....	4
Total.....	6	3	19	6	27	61

Most of these official samples were taken from seeds that were exposed for sale by seed merchants. They were tested in the seed laboratory according to prescribed regulations, and during the first year, in cases of violation, letters of warning were sent to the seed vendors who had exposed them for sale.

INVESTIGATION WORK.

Investigation work in the seed laboratory during the past year has consisted in part in making tests to determine the proportion of living weed seeds in samples of representative soils that were taken from various places after being exposed to different systems of cultivation. This work is being continued, and, it is expected, will be fruitful of interesting and instructive results. The immense quantity of noxious

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weed seeds contained in some of the samples of soils that were taken from weed infested lands is quite sufficient to produce luxurious crops of weeds for many years to come. The results obtained from this investigation work will have a direct bearing on the effectiveness of the different methods of cultivation to suppress weed growth.

Further investigation has been continued with a view to secure more definite information regarding the actual condition of the supply of grass and clover seeds, and more than 3,000 samples of timothy, alsike and red clover seeds, each sample representing an individual farmer's lot, were obtained through the kindness of the Wm. Rennie Seed Company, Toronto. Less than four per cent of that total number were entirely free from weed seeds, and only 16½ per cent of them were entirely free from the seeds of the weeds named in the Seed Control Act. More than 34 per cent of the samples contained Catchfly; 39 per cent contained Canada thistle; 44 per cent Curled dock, and 20 per cent, Ribgrass. All the samples tested were procured from the clover seed producing districts in the province of Ontario. The results of this work make more than clear the need for keeping the individual farmer's lots of grass and clover seeds separate in the case of all those that are transported from points of production to the large cleaning plants, and then allowing them to be mixed only after being graded as to their weed seed impurities.

In addition to the samples of weeds sent in for purity and germination tests, a large number of samples of weed seeds have been sent in for identification by farmers and others. The information asked for was promptly given.

The large collection of weed and economic seeds that is being compiled for reference in the seed laboratory now contains more than 800 authentic specimens of seeds that have been collected during the past two years. It is intended to make this collection a standard seed herbarium for Canada. Many of the specimens are obtained by exchange with foreign seed control stations. Such a collection of seeds is almost indispensable in a seed laboratory, where seeds are to be tested that have been imported from foreign countries.

Considerable time has also been given to the preparation of smaller reference collections containing 100 specimens for distribution to seed merchants and agricultural institutions. The nominal price of \$2 is charged for this collection.

The technical work in connection with seed testing in the seed laboratory has been modified and improved in different ways, so that the work may be done with the greatest dispatch and in a way to insure accuracy. The methods of germinating some of the kinds of seeds that are most difficult to manage are modified from time to time in accordance with the progress made with research work in our own laboratory and in the seed laboratories of Europe and the United States.

The staff in the seed laboratory now consists of an expert in charge of the technical work and ten assistants, six of whom are employed exclusively at doing purity test work, three at germination work and one at clerical work.

The increase in the number of samples tested in the seed laboratory has necessitated the purchase of two new standard germinators, an additional balance and some other minor accessories.

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THE MARITIME PROVINCES.

For the purpose of the work of the Seed Branch, the provinces of New Brunswick, Nova Scotia and Prince Edward Island are included in one district. The headquarters of the district officer are at Truro, N.S. During the past year he has continued the work of seed inspection, under the Seed Control Act, visiting farmers who make a specialty of seed growing, addressing farmers' meetings, and assisting to organize and conduct annual seed fairs. In New Brunswick and Nova Scotia more than in any of the other provinces, seed grain, particularly seed oats, has entered into the commerce of agricultural seeds, the great bulk of them being imported from Ontario. It is satisfactory to know that, as a result of persistent agricultural educational work, more attention is being paid to the growing and selecting of seed grain in those provinces than heretofore. Very little seed grain is imported by the province of Prince Edward Island. In fact, the cereal grain produced in that province is not excelled, in point of purity and plumpness, anywhere in Canada.

A very small proportion of the grass and clover seed used in these Maritime Provinces is home-grown. The quality of these seeds imported in previous years was inferior, taking them as a whole. The trade has been largely in the hands of local wholesale merchants, whose main business was of an entirely different character and who had not a thorough knowledge of seeds. In consequence, competition in the trade had been too largely restricted to prices. An earnest effort has been made during the past year to correct these evils of the seed trade, and with good success. Perhaps never before in the history of the Maritime Provinces has the quality of the seed grain and grass and clover seeds been so good as that offered in the retail trade last year.

In co-operation with the provincial departments, a series of summer meetings was held in each of the three provinces, at which the main questions discussed were, 'Noxious weeds and how to eradicate them,' 'The growing and selecting of seed grain,' and 'The control of noxious insects and fungous diseases of farm crops.' These meetings proved popular and especially instructive to farmers. They were able to bring to the meetings specimens of injurious weeds, insects or fungous diseases and have them identified and the methods of eradicating them discussed. Spring seed fairs were successfully held again during the year at Charlottetown, Truro, Antigonish, Berwick, Chatham, Sussex and Woodstock, in connection with which lectures were given by experts provided by my department. Each of these seed fairs received a special grant from the provincial departments to apply as prizes.

A grant of one hundred and fifty dollars was made to the management of the Maritime Winter Fair, at Amherst, N.S., to apply towards the expenses of establishing and maintaining a seed department for the benefit of the three Maritime Provinces. This department of the Maritime Winter Fair has proved to be an interesting and instructive one, and it is hoped that it will be continued and enlarged.

PROVINCE OF QUEBEC.

In the province of Quebec the work of seed inspection is largely done during the months of April and May. The reports of seed inspection for this district show that 100 towns and villages were visited, and more than 900 different lots of seed grain and

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grass and clover seeds were inspected. The data compiled by the inspector would indicate that about ten per cent of the seed on the market in the province of Quebec would grade No. 1, about three per cent of it was condemned as being unfit for seeding purposes, and fully twenty per cent of a quality only sufficiently good to pass the minimum standard fixed in the Seed Control Act.

Spring seed fairs were conducted again during the past year at St. Hyacinthe, Sherbrooke, Three Rivers, St. Romuald and Rimouski. With the exception perhaps of that at Sherbrooke, the seed fairs organized in the province of Quebec have proved to be popular and specially helpful to the farmers, and requests have already been made for assistance in organizing seed fairs at other central points. The material exhibited last spring was better in quality than in any previous year. As in other provinces, they are supported by a special grant from the Provincial Department of Agriculture at Quebec.

Special attention has been given during the past few years to the production of clover seeds in the province of Quebec, but on account of the clover crop being badly winter-killed little progress was made during the past summer.

Three series of summer meetings were conducted during June in the interest of seed production, and more than fifty lectures were delivered by experts on the growing and harvesting of grass and clover seeds, seed selection and weed identification and eradication. From July to November was spent by the district representative in visiting and inspecting the operations of farmers who make a specialty in growing and selecting seed grain and other seeds, and during the winter months his time was occupied in addressing farmers meetings and organizing seed fairs for the following year.

PROVINCE OF ONTARIO.

The farmers in the province of Ontario devote a great deal of attention to growing seeds of the various kinds of crops. The production of alsike and red clover seed has grown to be an important industry in some sections of the province. The supply of alsike seed therein produced virtually controls the world's prices for that commodity. In the average of years, fully one-half of the red clover seed produced is exported to Europe, and more than that proportion of the alsike seed. Although attended by some risks on account of crop failure during exceptional seasons, the clover seed crop is usually a remunerative one, and has the advantage of most other crops in that it does not materially deplete the soil of its fertility. Prior to the enactment of the Seed Control Act, the prices paid for clover seed of the best quality, grown on clean land, and for seed grown on land foul with noxious weeds, were too nearly uniform; the grading of the seed for market was based largely on its general appearance and colour, without due attention being paid to the noxious impurities contained in it. In consequence, noxious weeds, the seeds of which are common in red clover and alsike, became widely disseminated throughout the province, and have been a source of inestimable loss to farmers on whose lands they were for the most part unwittingly introduced. The enforcement of the Seed Control Act has had the effect of substantially increasing the price paid to farmers for clean seed, and has discour-

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aged the production of clover seed on lands foul with weeds. The seed produced on such unclean land is permitted to be sold for the purpose of recleaning, and it usually brings a much lower price than the clean seed.

My officer who has charge of the work of this branch in the province of Ontario has devoted considerable time to the matter of the production, selection and preservation of seed corn, particularly in the counties bordering on lakes Erie and Ontario. The great bulk of the seed corn sold in the trade to producers of ensilage corn has in past years been imported in a shelled condition from the Southern States. When shelled, corn is susceptible to damage from heating, which destroys its vitality. It has been found that this danger is largely overcome when the corn is left on the ear until it is wanted for seeding. Those who have procured their supplies of ensilage corn in the ear have been well satisfied with the results, and an effort has been made to have this method of preserving and handling seed corn become more general in the trade. In the production and selection of seed corn, it is necessary to prevent crossing between distinct types and varieties, and fields that are grown for seed have therefore to be grown somewhat apart from other kinds of corn.

A great deal of educational work in the matter of the production and use of high-class seeds and in the control of weeds has been done in co-operation with the Provincial Department of Agriculture. Seventy-three summer field meetings were conducted in the province of Ontario during June and early July. These were arranged through the farmers' institutes. My department met the cost for advertising the meetings and providing trained lecturers to discuss the problems of seed production and selection and the identification and eradication of weeds. Expert judges were also provided for each of twenty-three seed fairs, which were this year organized and conducted for the first time under the immediate auspices of farmers' institutes and agricultural societies. It is expected that their number and the interest taken in them will be materially increased by another year.

The enforcement of the Seed Control Act is an important part of the work of my officer for this province. Seed vendors in all parts of the province have been visited, and the application of the Act explained to them. Wherever any seeds of questionable quality were exposed for sale, official samples were taken by the inspector. They were examined in the seed laboratory, and a letter of warning issued to the person who had them for sale. More than 100 towns and villages were visited by the inspector last year. It is gratifying to know that although occasional violations of the Act are reported, the evidence throughout has shown a desire on the part of seed merchants to comply with the provisions of the Act, and it is believed that most of the violations have been unintentional. It is anticipated at this time that the principal difficulty that may be experienced by seed merchants during the coming season of the seed trade will arise in connection with the sale of red clover seed, largely on account of the failure of the Ontario crop during last season, and the consequent necessity of making large importations of foreign grown seeds. The price for red clover seed at this time is unusually high, and the demand for No. 1 quality was never greater, and is believed to be considerably in excess of this year's supply.

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PROVINCE OF MANITOBA.

During the early spring months a great deal of the time of my district officer for the Seed Branch, whose headquarters are at Winnipeg, was occupied in organizing seed fairs and competitions in standing fields of seed wheat and other grain. A circular was issued to each of the agricultural societies in the provinces of Manitoba, Saskatchewan and Alberta, offering to provide expert judges free of cost to all agricultural societies which would provide \$100 to be awarded in cash prizes for fields of standing grain of not less than ten acres, and judged from the standpoint of utility for seed purposes. The agricultural societies at Hartney and Morden were the only ones that availed themselves of this offer.

The months of July and August were devoted to inspecting the operations of farmers who make a specialty of growing and selecting seeds of cereal grains, most of them being members of the Canadian Seed Growers' Association.

The work of organizing and advertising seed fairs entails a great deal of clerical work which, for the province of Manitoba, is managed directly from the Winnipeg office, and occupies much of the time during the early winter months.

Two seed fairs were held in the month of December and twelve were held during the months of February and March at the following places: Manitou, Carman, Virden, Deloraine, Morden, Hamiota, Portage la Prairie, Brandon, Neepawa, Killarney, Dauphin, Swan River, Gilbert Plains and Hartney. My department, through the district officer, co-operates with agricultural societies in making arrangements for these seed fairs, meets the cost for advertising and provides expert judges and lecturers to attend them. The rules and regulations that govern these seed fairs are practically uniform throughout. A grant of \$150 was made to apply towards expenses in connection with the seed department of the winter fair at Brandon, which is provincial in character. The exhibits of seed grain at Brandon were numerous, and the quality was exceptionally good. The exhibits represented more than 40,000 bushels of seed grain for sale.

The work of the Seed Branch in the province of Manitoba ended, for the fiscal year, with the commencement of the inspection work under the Seed Control Act.

PROVINCE OF SASKATCHEWAN.

There are as yet only twenty-six farmers in the province of Saskatchewan who make a specialty of growing and selecting seed wheat and other grains. I instructed that the officer in charge of this work for the province of Saskatchewan should devote a great deal of his time during the summer months in an endeavour to interest other good farmers in the work of seed growing, with a view ultimately to induce them to take up this work as a special industry in their farming operations, and in that way to greatly increase the supply of good and pure seed wheat of desirable milling varieties. Those farmers who give special attention to that work are visited each year by my officer, and are materially aided by him in disposing of their surplus supply of seed grain at prices commensurate with its value.

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Competitions in standing fields of seed grain were arranged for in co-operation with the Provincial Department of Agriculture, and successfully conducted by thirty-one of the agricultural societies in Saskatchewan. These have been the means of arousing interest in the production of high-class seeds and of increasing the yield and improving the quality of the grain produced. A summary of the results of these competitions was published in bulletin form and distributed to the farmers throughout the western provinces.

Twenty-one seed fairs were held in Saskatchewan during the past winter months, and, with one or two exceptions, were most successful. The average attendance at the seed fairs was 78; the average amount of prizes paid out was about \$80 for each fair; there was an average of 21 entries of seed grain, of which nearly a third was ruled out of competition on account of the presence of seeds of objectionable weeds. Seed wheat seemed to predominate, having an average of 12 exhibits at each seed fair. The classes for barley, flax and grass seeds were never well filled. The average amount of clean seed wheat for sale at each seed fair was 2,823 bushels and the good clean seed of all the various kinds of grains, grasses, &c., make a total average of 6,271 bushels for each seed fair. The prize winning wheats at all of the 21 seed fairs averaged 63½ pounds per measured bushel, the heaviest sample going 65½ pounds. The prize winning oats at the 21 seed fairs averaged 41¾ pounds to the bushel, the heaviest of all at all fairs tested 45½ pounds per measured bushel.

Germination tests of a large number of the samples that were taken indicate that occasional lots of the seed oats, although of excellent appearance, are apt to be low in percentage of vitality. To further add to the usefulness of these seed fairs, arrangements are being made so that germination tests of seed oats exhibited may promptly be made at the seed laboratory at Calgary, and the results made known at the time of the seed fair. Lectures on seed growing, seed selection and kindred subjects were delivered at all of the seed fairs to a total of more than 1,600 farmers.

The work of seed inspection in the province of Saskatchewan, as well as in the provinces of Manitoba and Alberta, has been considerably lessened on account of the existing provincial laws, which were in force prior to the enactment of the Seed Control Act. Those laws fully cover and in fact are more comprehensive than it was thought well to make the Seed Control Act during the first few years, in as much as the Dominion Act is made to apply throughout all Canada.

PROVINCES OF ALBERTA AND BRITISH COLUMBIA.

The operations of the Seed Branch for the provinces of Alberta and British Columbia are directed from the district office in Calgary, and are under the immediate charge of Mr. W. C. McKillican, who is given the supervision of the work of the Seed Branch for the western provinces, under the seed commissioner. The work of inspection in the province of British Columbia engaged his attention during the early spring months. He spent a considerable time during the summer in visiting and instructing farmers who are growing high-class seed and who are members of the Canadian Seed Growers' Association, and served as judge of agricultural products at the exhibitions held at Calgary, New Westminster, and several of the smaller fairs. During Sep-

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tember and October several weeks were spent in farmers' institute work in British Columbia. Seed fairs were held in Ponoka, Red Deer, Olds, Innisfail, Didsbury, Calgary, Medicine Hat, Lethbridge, Magrath and Cardston. As in the previous year, the Seed Branch bore the cost of advertising, and supplied expert judges and speakers. A provincial seed exhibition was held March 6 to 8 at Edmonton. Exhibitors sending from different points of the province of Alberta were assisted in transportation charges. In holding this exhibition the Seed Branch co-operated with the Provincial Department of Agriculture. It was the first provincial seed exhibition held in Alberta and was a decided success.

During the past summer competitions in fields of standing grain were held in connection with the Vegreville, Red Deer, Medicine Hat, Lethbridge, Magrath, Raymond and McLeod agricultural societies. The conditions in this province were the same as in Manitoba and Saskatchewan. Prizes to the amount of \$100 were offered by each society, and judges were supplied by the Seed Branch. Before commencing the work of judging the judges spent a day in instruction and practice in judging fields of grain with the score card at the Experimental Farm, Indian Head.

Several weeks in February were spent in farmers' institute work in Alberta.

The seed laboratory for the west, which was forecast in last year's report, has been established at Calgary, and has amply justified its existence. Starting operations January 25, the number of samples received for testing up to March 31 were as follows:—

Kind of Seed.	Alberta.	British Columbia.	Saskatchewan.	Total.
Wheat.....	60	.....	44	104
Oats.....	150	.....	15	165
Barley.....	27	1	5	33
Peas and beans.....	2	.....	.....	2
Rye.....	1	.....	.....	1
Flax.....	1	.....	5	6
Timothy.....	6	21	1	28
Other grasses.....	14	10	1	25
Alfalfa.....	2	6	.....	8
Red clover.....	2	18	1	21
Other clovers.....	2	11	.....	13
Vegetables.....	53	2	.....	55
Total.....	320	69	72	461

THE LIVE STOCK BRANCH.

The work of the Live Stock Branch is directed towards the improvement of the stock-raising industry in Canada, and is carried on through the agencies of expert teachers and stock judges; the systematic distribution of pure-bred breeding stock; the yearly testing of pure-bred dairy herds; the supervision of the accuracy of registration of pure-bred animals; and the extension of the nationalization of live stock records.

A heavy demand from the various provinces for speakers and demonstrators for farmers' institutes and live stock judging schools has been met by the Live Stock

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Branch throughout the year. In June and July expert teachers were placed at the disposal of the provinces of Prince Edward Island, Nova Scotia and Quebec. In the two former provinces series of meetings were addressed upon topics bearing upon the live stock needs of these provinces. In Quebec, in addition to a series of regular institutes, a number of special bacon hog meetings were held, for which a carload of hogs, hog fences, foods, &c., were used for demonstration purposes.

During the late summer and autumn months delegates from the Live Stock Branch addressed gatherings of farmers in Prince Edward Island, Nova Scotia, New Brunswick, Saskatchewan, Alberta and British Columbia. At a large number of these meetings live animals were used for demonstration purposes, and where these could not be obtained suitable charts, diagrams and stereoscopes were used for this purpose.

Again in January, February and March lecturers were at work in Quebec, Saskatchewan and Alberta. In Quebec at fifty points about fifteen thousand persons were addressed upon agricultural topics. The work in Saskatchewan and Alberta took the form of combination farmers' institutes and stock judging schools. In the latter province two carloads of stock, comprising about fifty head of the various classes of horses, cattle, sheep and swine accompanied the delegation of expert teachers for demonstration purposes. Block tests and judging competitions were interesting features of each of these schools.

From the Atlantic to the Pacific coast farmers attended these meetings with receptive minds, with the result that the agricultural practice of the Dominion is gradually improving.

For the winter fairs held at Amherst, Brandon, Neepawa, Killarney, Regina, Calgary and Vancouver judges and lecturers were supplied for live animals and dressed carcasses. At several points where horse shows were held in connection with these fairs the judging was accomplished by representatives appointed by the live stock commissioner. The programme of lectures, demonstrated in many cases by live animals or carcasses, occupying from one to three days, were carried out at these fairs. The lectures for these were usually delivered by the men who placed awards on the stock.

During the summer and autumn of 1906 expert judges of the various classes of farm animals were provided for circuits of fairs and exhibitions in the provinces of British Columbia, Alberta, Saskatchewan, Quebec, New Brunswick, Nova Scotia and Prince Edward Island. Whenever an opportunity was afforded these judges delivered addresses at the ringside, in which reasons were given for the placing of the awards.

Assistance was afforded to provincial live stock associations towards the holding of co-operative auction sales of pure-bred stock for breeding purposes in the provinces of British Columbia, Alberta, Saskatchewan, Manitoba and the Maritime Provinces. This system of distributing improved live stock at the lowest possible expense was organized and put into working order a few years ago, and is now carried on by the provincial associations, each of which receives an annual grant towards defraying the expenses of the sale. One condition of these sales recently imposed by those responsible for their management, viz., that no animals other than those owned by a resident

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of the province concerned, is at present receiving the attention of the live stock commissioner, as it is scarcely in accordance with the policy of the department.

Four sales of pure-bred swine of the breeds suitable for the production of bacon for the British market were held in the province of Quebec in October, 1906. The object of the sales was to introduce superior stock for the improvement of the swine in the province. Each sale comprised about twenty-five animals about seven to nine months' old of the Yorkshire and Tamworth breeds. Many were purchased by farmers' clubs for the general benefit of their members. They brought an average price of about sixteen dollars per head.

With a view to encouraging breeders of pure-bred dairy stock to give greater heed to the increasing and improving of the milk production of their herds, I undertook, early in 1906, to officially supervise the yearly testing of pure-bred herds. The breed associations co-operating in this work agree to regulations imposed by the live stock commissioner, and to publish as an appendix to their respective herd books the records of cows that reach the standard for registration in the record of performance. The standard for registration varies with the different breeds according to the wishes of the associations respectively. All other rules and regulations were drawn up by the live stock commissioner, and are uniform for all breeds.

The Ayrshire, the Jersey, the Guernsey, the French Canadian and the Holstein-Friesian Associations have subscribed to these regulations and have set standards for registration. So far only the Ayrshire and the Holstein-Friesian Associations have undertaken the work of yearly testing on more than a very limited scale.

The nationalizing of Canadian live stock records, which was undertaken in 1903 and applied to a large number of breeds, has been further extended during the past year. Since March 31, 1906, national records have been established in Canada for Thoroughbred horses, Red Polled and Aberdeen-Angus cattle, and Cotswold, Leicester, Lincoln, Shropshire, Southdown, Dorset, Oxford and Hampshire breeds of sheep.

A new book has been established for the French Canadian breed of horses. The original stud book taken over by my department for nationalization was found to contain the pedigrees of horses that by their breeding and aptitudes do not conform to the original 'Canadian' horse. The old book was therefore closed, and a new foundation book commenced with inspected stock of proper type, quality and breeding. A commission of qualified men is now visiting each county in the province inspecting not only animals registered in the old book but new applicants for registration as well.

Under the national system of registration a uniform style of certificate for all breeds has been adopted. Each certificate after being prepared by the registrar, working under instructions from his respective record associations, is compared with the application for registration sent in, and scrutinized for accuracy by an officer of the Live Stock Branch, who, upon finding the certificate correct affixes the seal of the Department of Agriculture before it leaves the office of registration. This provision assures the Canadian farmer, the foreign buyer and the foreign government, that a pedigree issued by the Canadian National Records is authentic.

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The following table shows the total number of certificates of registry and transfer approved by the department during the past fiscal year:—

Association.	Certificates of Registration.	Certificates of Transfer.
<i>Cattle—</i>		
Shorthorn.....	10,762	2,432
Ayrshire.....	1,973	790
Hereford.....	732	246
Aberdeen-Angus.....	464	81
Galloway.....	63	6
Jersey.....	129	9
Guernsey.....	35	6
French Canadian.....	160	29
Red Polled.....	33	
<i>Horses—</i>		
Clydesdale.....	1,984	515
Saddle.....	59	11
Hackney.....	167	25
Thoroughbred.....	52	
<i>Sheep.....</i>	707	177
<i>Swine.....</i>	6,411	533
Total.....	23,731	4,860

EXPERIMENTAL FARMS BRANCH.

The experimental farms grow in favour with the farmers of the Dominion from year to year. They give constant and helpful information which is very much appreciated. The large accumulation of useful facts, the results of careful observations, which are presented from year to year in the annual reports and bulletins issued, are treasured carefully by most practical farmers, and referred to from time to time as the information is needed. The constantly increasing demand for the publications of the farms is a most gratifying evidence of the general appreciation in which they are held.

NEW EXPERIMENTAL FARMS.

The usefulness of these institutions has led to frequent requests for more of them, and during the past year, under my instruction, two additional experimental farms have been selected and the work connected with their establishment begun. One of these has been located at Lethbridge, in southern Alberta, where it will give opportunity for experiments on the various problems connected with irrigation, as well as those relating to dry farming. There are 400 acres of land in this farm, 100 of which can be irrigated, and the other 300 will be available for experiments in dry farming. The other new farm has been established at Lacombe, in northern Alberta, and comprises 150 acres, where experiments in general farming suitable for that district will be conducted. At both these farms different methods of preparing and cultivating the soil will be tested, and the adaptability of various important grain and fodder crops to the climatic conditions prevailing in these localities ascertained. Trials will also be made with different sorts of fruits and vegetables, and also of forest trees for shelter, all of which it is hoped will prove useful to the farmers of Alberta. It is my purpose to establish several additional stations in other parts of the Dominion during the coming year.

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Experiments have been continued during the past year in all branches of farm industry. Many new and important facts have been ascertained in reference to the quality and productiveness of many promising wheats, and their relative value for flour and bread making, especially early ripening sorts; also in regard to the feeding of cattle and swine. A large distribution of the best varieties of grain available has been made and samples for trial freely sent to all parts of the country for the improvement of seed. Much progress has also been made in the production and testing of different sorts of fruits suitable to the different climates of Canada. In the poultry branch also much useful work has been done, helpful to the progress of this industry and to the making of it more profitable. Other lines, especially those involving original research in the Chemical, Botanical and Entomological Divisions, have been pursued with much enthusiasm by the several officers in charge, and many useful facts have been accumulated for the benefit of the farmer and fruit grower.

DIVISION OF AGRICULTURE AND LIVE STOCK.

In soil cultivation and crop growing, lines of work of very great importance are being carried on. Studies are being made of (a) cost of growing various crops under varying conditions; (b) influence of depth of culture upon productivity of soil; (c) influence of different methods of manuring upon soil fertility; (d) influence of rotations of varying length and character upon soil fertility and soil improvement; (e) comparative values of different rotations as systems to follow on stock farms; and (f) influence of pasturing upon (1) fertility of soil, and (2) cattle-carrying power of a given area.

The soil.—Twelve different rotations are under test. Various methods of growing different crops are being tried, with interesting results. Various systems of cultivating the soil are being compared as to economy of operation and influence on fertility.

Crops.—The field crops common to Canada are grown, and a study is being made of their comparative economy as food or forage producers.

Indian corn is grown extensively, and has been found to be exceedingly valuable as a feed for all classes of live stock both as grain and roughage. It has been found to be much more economical to preserve it as ensilage, and feed it to cattle in that form than to attempt to dry it in the stook as is very commonly done.

Roots have been grown extensively, and have been compared with corn as to economy of production, and value as feed for different classes of live stock.

Different sorts of oats are grown extensively, and our experience goes to show that for this part of Canada the Banner is easily the heaviest cropper.

Clover and alfalfa are grown quite largely, and our results show that as soil improvers and food producers combined they are of unsurpassed value to the farmer.

In the Animal Husbandry division, work is being carried on with dairy cattle, beef cattle, steers, sheep and swine. It sought to determine the comparative economy of different foods as milk and flesh producers, and to determine the most economical rations or food mixtures to feed the different classes mentioned.

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Dairy cattle are kept in considerable numbers, and numerous experiments are being conducted to gain information as to the best feeds for them, the best methods of feeding, the best classes to keep, the best lines of breeding to follow, the influence of different breeds and conditions on the milk yield and quality, and the best care to give in summer and in winter.

Beef cattle are kept in small numbers. An effort is being made to ascertain whether it is possible to combine dairying and beef production profitably in the same herd.

Steers are fed quite extensively for beef production, and experiments during the past year have been to determine the comparative economy of feeding well-bred vs. badly-bred steers.

Swine.—The production of pork for bacon manufacture is always a problem of primary importance, and some experiments are always under way with a view of gaining some light on the various difficulties which meet the pork producer at every turn.

Sheep.—Two breeds of sheep are kept on a small plot of ground, and an effort is being made to determine if possible the number of sheep that may be kept on a given area and the profit that may be expected from them. The breeds kept are the Shropshire and Leicester.

HORTICULTURAL DIVISION.

Notwithstanding the very unusual winter of 1905-6, with a light covering of snow which disappeared early in March, the injury to fruits at the Central Experimental Farm was not great, with the exception of strawberries, a plantation of which was almost completely destroyed, as were practically all strawberry plants in the vicinity of Ottawa. The comparatively small amount of injury among fruit trees was probably due principally to the fact that most of the trees are now root grafted on hardy stocks, those on tender stocks having for the most part been killed out in severe winters during the past nineteen years.

The older trees at the farm which have been planted since the year 1888 are now producing, when there is a full crop, from three to four barrels of fruit each, so that there is an increasing crop of apples each good year.

In 1906 the summer and autumn varieties yielded well, but there was a small crop of winter fruit. There are growing up in the orchards at the farm young trees of a different class of winter apples, which are much hardier than most of those at first tried. Some of these have been for some time represented by individual trees in the orchard, while others have not fruited at Ottawa yet. These winter apples are varieties which ripen their wood up well in the autumn. This early ripening of wood brings with it a fruit which is more mature when picked than most of the older varieties of winter apples, but the fruit will keep all winter if in good storage. The difficulty with most winter apples is that the trees grow too late in the autumn, and the wood is not sufficiently ripened to withstand the cold and changes of temperature. The hardy winter apples have practically all been originated in a climate much like that at Ottawa. Some have been originated at Ottawa.

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A large number of seedling apples fruited at the Experimental Farm this year, among which are some very promising varieties, including winter sorts of good quality. Some of these have been named in order that they may be sent to other places for further test and to determine whether they are worthy of introduction. As there are so many kinds already on the market it is not desirable to introduce anything unless it has greater merit than the varieties already introduced.

An experimental shipment of summer apples was made to Glasgow, Scotland, in 1906. The fruit arrived in good condition, and sold at fair prices. One of the objects in making the shipment was to determine whether thin wood material, such as can be obtained in eastern Canada, could be used for the tops of the boxes as in British Columbia, where tougher wood can be procured. The boxes carried well, there being no breakage. If in future shipments this wood proves tough enough it will be an advantage, as the fruit can be packed much more tightly with thin covers, and with a minimum amount of bruising.

A small orchard of about one and one-half acres of two varieties of apples was planted in 1906 for comparison of cultural methods, the object being to learn what effect each will have on the growth, hardiness and fruitfulness of the trees.

The grapes did well at the farm in 1906, and a large number of varieties ripened thoroughly. New and earlier varieties are being introduced from time to time, so that the number which will ripen every year is increasing. Some of the seedlings originated at the Experimental Farm are very promising.

The vines are covered with soil each winter. The value of this soil seems to lie more in the protection afforded from sudden changes of temperature than from extreme cold.

Experiments with vegetables have been a prominent feature of the work of the Horticultural Division for the past nineteen years. The tests of varieties are now for the most part limited to a comparison between those which have been found to be the best and the novelties offered each year. Cultural methods are now receiving increasing attention. For the past few years experiments have been in progress in saving and selecting seed of certain kinds of vegetables grown at Ottawa. The effects on earliness have been very marked, home-grown seed producing earlier crops.

Spraying experiments were conducted in 1906 in fighting aphids, which were very troublesome during the summer. Different percentages of kerosene were used in an emulsion made with flour with very satisfactory results.

The forest belts which are included in the Horticultural division yield useful information each year. In addition to the annual measurements of trees, notes were taken recently on the effect which the trees have upon each other in the mixed belts. Certain kinds soon succumb if shaded, while others endure shade for a long time.

The Arboretum and Botanic Garden looked well in 1906, notwithstanding the severe drought. Additions were made to the collection, which is now a very large one. Most of the native trees and shrubs are represented, and a large proportion of them

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do well at Ottawa. Much valuable information on the hardiness, time of blooming, growth, &c., of the trees and shrubs and herbaceous plants is being obtained.

DIVISION OF CHEMISTRY.

The general work of the division in all its branches has increased during the past year, and this fact may be taken as an encouraging sign, since it affords satisfactory evidence that the farming community are appreciating more and more the value of chemical work to every day practical agriculture. This direct educational work is chiefly carried on by assistance through correspondence, and by the examination of soils, feeding stuffs, &c., &c., sent in by farmers.

Several of the more important researches of the past year may be referred to briefly as follows:—

The Deterioration of Wheat on Scrub Lands.

In certain districts in the Northwest, and more particularly on newly cleared land, hard No. 1 Red Fife becomes more or less starchy and thus reduced in value. Experiments to ascertain the cause of this deterioration were instituted in one or two districts of Manitoba, and it has been found that this newly cleared land, was compared with adjoining land which had been cultivated for a number of years, was richer in vegetable matter and nitrogen, and throughout the whole growing season contained a very much larger percentage of moisture. The investigation will be continued, and if future work confirms the present data it may be possible to find not only the reason for the deterioration but also a remedy. It seems more than probable that environment, including all the conditions of growth, exerts a very marked effect on the resulting grain, and it is therefore of the highest importance to ascertain what those conditions are that conduce to a first quality of wheat and to learn how far such condition may be modified by cultural operations.

The Chemistry of Wheat.

An endeavour is being made to establish some better relation than is at present apparent between the composition of wheat as revealed by chemical analysis and its baking or bread-making value. This investigation is being conducted in conjunction with the Cereal Division. Its importance is self-evident. Certain facts, or rather relationships, of considerable significance have been made clear by this research, but as the work is still under hand it is too early to make any definite announcement thereon. The probability, however, is that it is the amount and nature of the nitrogenous compounds that will be found to be the determining factors.

The Maintenance of Soil Fertility.

This is a matter of national importance, especially considered in connection with our Northwestern wheat fields. It has been shown that all soils, especially the richest, show a marked deterioration when cultivated to grain successively for a long period. It must not be supposed that any soil is inexhaustible; unless rational systems of culture are adopted they must gradually fail. The present system of cropping, i.e., a

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cereal crop with occasional summer fallowing, will assuredly in time lead to reduced yields. This is chiefly owing to loss of organic matter and the concomitant loss of water-holding ability. Experiments have therefore been made to learn the value of certain 'green crops,' such as clover and peas, for keeping up this fertility, and it would seem that in districts where clover is considered a failure peas may be used with advantage for this purpose.

Management of Orchard Soils.

Further experiments have been carried on to learn the effect of cultivation, various cover crops, the growth of weeds, &c., &c., on the moisture content of the soil. It has been shown that sod, allowing weeds to occupy the ground in seasons of drought, act most injuriously by robbing the orchard trees of the moisture they require for their growth. Cultivation on the other hand tends to conserve the moisture, so that through the whole season of 1906, the greater part of which was marked by a scanty rainfall, the initial percentage of water in the soil was maintained.

Insecticides and Fungicides.

A number of new emulsions and washes have been devised which it is believed will prove serviceable. Several of these are combined insecticides and fungicides, such as a spray compound of bordeaux mixture, kerosene and paris green. In all of these, flour has been used as the emulsifier, and found very satisfactory.

Many samples of bluestone and formalin, used in the treatment of wheat for the prevention of smut, have been analysed. The general result is that very little adulteration has been detected.

Feeding Stuffs.

Various by-products, from breakfast food factories, starch factories, beet-sugar factories, &c., &c., on the Canadian market have been analysed and their nutritive value determined. This work has been much appreciated by farmers, dairymen and stock-feeders, as it allows them to use discrimination in the purchase of those feeds necessary to supplement their home-grown fodders.

Dog-fish Scrap.

Dog-fish scrap, the residue after the extraction of the oil, is now being produced in large quantities at the Reduction works in Nova Scotia. It was desirable to ascertain its fertilizing value, and to determine what elements might be necessary to supplement its use in order to make a complete fertilizer. A large number of analyses have been made, and it was found that this is essentially a nitrogenous material. The dog-fish has not a bony skeleton, and the refuse is accordingly low in phosphoric acid. The scrap will contain between eight and nine per cent nitrogen, which is exceedingly high. With the addition of a due proportion of phosphates and potash salts (the muriate or sulphate) a very valuable fertilizer would result.

DIVISION OF ENTOMOLOGY AND BOTANY.

The work in this division during the season of 1906 was of a very diversified nature. The remarkable drought which prevailed throughout the Ottawa valley during

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1906 reduced the vigour of all vegetation, and enabled many kinds of injurious insects to increase in an unusual manner. One of the notable outbreaks of the year which required much attention and correspondence, was of several kinds of plant lice, which attacked almost all trees, shrubs, and herbaceous plants. As is usually the case, these insects were to a large measure controlled by their natural parasites. The ornamental birches on the Experimental Farm, and also those in the woods, were literally swarming with plant lice during June. In July countless numbers of the Two-spotted Ladybird Beetle appeared, and entirely put a stop to this outbreak. The blackish pupæ of the ladybird beetles were so abundant on the leaves as to give a strange dirty appearance to the birch trees. From 18 to 20 of the pupæ were sometimes found on a single leaf. Unfortunately, few of these produced the ladybirds. Instead, from each pupæ a swarm of minute hymenopterous parasites emerged.

A new injury was observed at Ottawa in the destruction of the seed of the silver maple by the larvæ of a small Nitidulid beetle, *Epuræa rufa*, of which over a dozen occurred in each seed, entirely destroying its germinating power. In the swamps and woods, as well as on ornamental grounds, the American Arbor-vitæ was seriously disfigured by the attacks of the caterpillars of two minute moths, *Argyrothia thuiella* and *Recurvaria thuiella*, which gave these trees a rusty sickly appearance by reason of the large number of the tips of the twigs which had been killed by the caterpillars boring inside them during the previous autumn and the following spring.

In the flower garden much attention was attracted by the injuries of one of the minute moth-flies, *Aleprodes vaporariorum*, which is a well known pest of greenhouses.

Of the fruit pests, the Apple Maggot was a source of anxiety, having appeared in several widely separated localities, as in southern Ontario, Quebec and New Brunswick, and it is reported from Nova Scotia.

The San José Scale situation is practically unchanged. This insect is causing extensive losses in the small part of Ontario which is infested; fruit growers have not yet adopted generally the systematic spraying of their orchards with the lime and sulphur wash, which is necessary to control this pertinacious insect. There have been one or two small occurrences of the San José Scale in British Columbia. The attention of the provincial government has been drawn to the matter, and steps have been taken to clear the orchards.

The Codling Moth, which for some unexplainable reason has never been a serious enemy of the fruit grower in British Columbia, is now destructively present at two localities in that province, and advice has been given as to the best means of controlling it.

The Oyster-shell Scale, a well known enemy of the fruit grower and gardener, possibly owing to the dry season, increased in a very remarkable manner, and has been the subject of much inquiry.

In Nova Scotia there has been during the past season considerable injury done in apple orchards by the caterpillars of the two common Tussock Moths, which in many places disfigured the fruit by gnawing cavities in the sides of the apples, and also ate the leaves.

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The Brown-tail Moth, which has done so much harm in the New England States, has unfortunately established itself in Nova Scotia and New Brunswick. Immediately on receiving specimens of the over-wintering caterpillars, steps were taken through the local press to stir up fruit growers and others to make a thorough search for the tent-like nests containing the caterpillars and destroy them. As the Brown-tail Moth passes the winter in the caterpillar condition in colonies of 200 or more in a silken tent near the tips of the twigs of the fruit trees, its identification is a very easy matter, because no other insect found in the orchards has this habit. The provincial government of Nova Scotia, through Prof. Cuming, of Truro, and his staff, has taken this matter up energetically, and everything is being done to encourage owners of trees to destroy the caterpillar-containing tents, and later to spray orchards regularly so as to kill any caterpillars which may have been overlooked.

In the vegetable garden, two insects calling for mention are the Asparagus Beetle, which has now spread as far east as Ottawa, and the Potato-leaf Aphis, which did much injury in eastern Canada.

In British Columbia, the oak trees around Victoria were again denuded by the Vancouver island Oak-Looper. Where the trees stood in private grounds they were protected by spraying with arsenical mixtures.

The spruce Gall-louse continues to increase, particularly in the province of Ontario, and has done much harm in groves of white spruce.

As in past years, large numbers of specimens of insects and plants have been sent in to the division for naming, both by farmers and gardeners as well as by scientific students and school teachers. The officers of the division have been pleased to attend to all these promptly, and several acceptable additions have been made to the collections from this source.

The entomologist and botanist has attended several meetings of farmers' institutes, fruit growers' and teachers' conventions, before which he has delivered addresses on entomological and botanical subjects.

CEREAL DIVISION.

Good progress has been made during the past year in the various branches of work included within the scope of this division. The breeding, selecting and testing of cereals are being carried on as rapidly as possible, with a view to supplying suitable varieties for cultivation under all the varied conditions of climate and soil in Canada. Plant breeding requires many seasons for the completion of even one series of experiments, and some patience is therefore necessary in awaiting the results. The improvement of existing varieties by selection is accomplished more rapidly, and in this work very good results have already been reached, and some selected, improved strains of cereals are now being propagated for distribution.

NEW VARIETIES OF CEREALS.

New sorts of cereals are from time to time obtained from other countries. During the past year some interesting kinds were received from Russia, the United States and

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elsewhere. Most of these showed no points of superiority over the best varieties which were already in cultivation at the Experimental Farms, but careful selections from the new sorts have been made for further trial. It is gratifying to notice that the best of the new varieties originated at the Central Experimental Farm show a marked superiority over most of the imported sorts, so far at least as suitability for Canadian conditions is concerned. Several hundred new kinds of cross-bred cereals which are now almost fixed in their characteristics are ready for sowing this season. Among these are some most interesting and promising varieties which should be ready for propagation next year.

The new, selected strains of some of the older varieties of wheat such as Red Fife, Stanley, &c., have proved of great interest, and are now being sent to some of the branch experimental farms for more extended trial.

Test plots.—The uniform, comparative tests of varieties of wheat, oats, barley, peas, turnips, carrots, fodder corn, &c., have been continued as usual. These experiments serve to demonstrate in a striking way the relative productiveness, earliness, &c. of the varieties under test, and make possible a wise choice of varieties suitable for the climate of the district where the tests are carried on. Midsummer at Ottawa was rather dry, so that the crops were in many instances below the average. A fair yield was, however, obtained in most cases.

Flax.—Among the new lines of work taken up last season may be mentioned the selection of prolific strains of flax with a view to the production of fixed varieties superior in merit to the mixed commercial sorts now cultivated in this country. It is hoped that a few years' work in this direction will make possible the introduction of improved strains which will give distinctly larger yields of seed than are now obtained.

Milling and baking tests of wheat.—The study of the quality of old and new varieties of wheat has been continued on a large scale during the past winter, and some important conclusions have been reached. The superiority of hard over soft wheat (when both are of the same variety) for the production of strong flour has been clearly shown; at the same time it has been found that varieties with dark reddish bran are not necessarily superior to those in which the bran is normally pale and yellowish.

The beneficial effect of age on the baking strength of flour has been so strikingly demonstrated in one instance that further work on this subject seems of great importance.

The methods for determining the baking strength of flour have been made the subject of careful study by the cerealists, with the result that a new system has been devised whereby it is possible to give a sufficiently accurate numerical expression to the quality of each sample of flour so that a permanent record can be kept and comparisons made with other flours of the same or any future year.

The baking strength of the flour obtained from the leading varieties of spring and winter wheat has been determined, in some cases for two seasons, and it is proposed to publish these results in bulletin form.

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The importance of growing those varieties of wheat which are of the best quality and will command the highest market price is being constantly emphasized; and these investigations into the strength of flour will serve the purpose of clearly establishing the relative merits of the different varieties of wheat in this important respect.

THE POULTRY DIVISION.

During the past year the experimental work of this branch has been of a varied and useful nature. The aim of the department has been by continued trial to find out the real value to the farming community of the following features of more recent poultry development.

1. Unheated houses with scratching shed attachment as compared with partially warmed apartments.

2. The trap nest as a means of detecting the good and poor layers, and so aiding in building up prolific egg-laying strains of fowls.

3. The feeding of dry ground grains to a pen of fowls in an unheated house and the effect on egg production.

It is gratifying to find results—which will be given in detail in the annual report of the farms—more favourable to the unheated house system, with its ample influx of fresh air, than to the other and warmer method. The trap nests have proved valuable in determining the individual egg-laying merits of the different inmates of the various pens. An objection has been made to the use of the trap nest on the ground that where a number of fowls are kept, its efficient manipulation would take up too much of the farmer's time, or, necessitate extra help. Where a farmer has an unusually large number of fowls it would be advisable to have a comparatively small breeding pen and the trap nest used in this pen only. The work of selection would doubtless be slower, but it would certainly entail less trouble. Besides, other systems of selection are now in vogue and are practised with more or less success.

The difference in late methods of feeding consists in the fowls helping themselves to their food and other concomitants which are before them, all the time, in hoppers rather than being fed stated quantities at stated periods. This hopper-feeding method promises to be extensively adopted on account of its simple and effective manner of operation. A trial during last winter of this method of feeding mixed ground grains dry to a pen of fowls was most satisfactory.

Other experimental work in feeding rations composed of whole and ground grains of different sorts and in greater or less quantities was attended with varied degrees of success.

The value of strain as a factor in determining the good or bad laying qualities of the fowls, of all varieties, was forcibly emphasized. Hence the value of a system whereby prolific egg-laying strains may be built up and perpetuated.

A rapidly growing correspondence in connection with this department shows increasing interest in poultry keeping which when properly conducted will be found a profitable branch of farm work.

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BRANCH FARMS.

Experimental Farm for the Maritime Provinces.

The experimental work carried on at Nappan during the past year has included trials of the most promising sorts of cereals, fodder corn, field roots and potatoes. It has been so conducted as to indicate which are the best and most profitable sorts for the farmer to grow.

Experiments have been continued with fruits also. New varieties of apples have been fruited in the orchards, and a number of different sorts of small fruits tested. Some interesting and useful work has also been done in the testing of vegetables.

The crops of grain have been above the average. The apple crop also was a good one.

Experiments have also been conducted in the feeding of steers and swine; also with poultry and bees.

Experimental Farm for Manitoba.

The Experimental Farm at Brandon is a source of great interest to the farmers of Manitoba, who visit it during the summer season in large numbers with the object of gaining information from the many object lessons displayed there. In methods of cultivation and diversity of crops, including cereals, clovers, grasses and other fodder and root crops, there are many things which make this farm attractive, and useful lessons may be had at every visit.

The varieties of crab-apples and cross-bred sorts have reached an interesting stage, and the quantities of such fruit produced on the Brandon farm are quite considerable. Many varieties of plums are also grown, and much attention has been given to the cultivation of small fruits.

Experiments are conducted every year in the feeding of steers, also with swine, poultry and bees.

Experimental Farm for the Northwest Territories.

Up to the present time the work of the Indian Head farm has been made to serve the purposes of the whole area of Saskatchewan and Alberta, a section of country too large and varied in its climate to be satisfactorily served by any one institution. The Indian Head farm has done notable work, which has been highly appreciated by the farmers throughout that country. Similar tests to those referred to in connection with Brandon with grain and other important farm crops have also been made at Indian Head. The trials made there with grasses and other fodder plants have been very successful, and the large crops obtained have encouraged many farmers to engage in their cultivation.

Many experiments have been made with garden vegetables, and the information gained has been very useful. Some experiments of special value have been tried in growing vegetable crops from seed ripened at Indian Head. These crops have almost

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invariably proved earlier than when grown from imported seed. The tests made with cross-bred apples and the Siberian crab-apple have been very successful, and the great hardiness of these varieties has attracted much attention.

Experimental Farm for British Columbia.

The experimental work carried on at Agassiz includes a large number of trials with varieties of fruit. These have been brought from many different countries. Where a variety proves inferior, as is very often the case, it is promptly discarded to make room for another sort. In this way a large array of facts has been accumulated regarding the quality and season of ripening of many different sorts. Within the last two years commercial orchards have been started with varieties which have been thoroughly tested, and it is hoped that within a few years more some information will be available as to the profits obtainable from the different sorts tested. This season apples were only a fair crop, pears a light crop and plums a heavy crop.

Many different sorts of oats, barley, pease, indian corn, field roots and potatoes have been tested, with much success. On the whole the season was a favourable one for most farm crops.

GENERAL CROPS.

The crops throughout Canada during the past year have been generally good, the area of land under cultivation is rapidly increasing from season to season, especially in the Northwestern provinces, and the surplus grain for export is growing much larger from year to year.

Ontario.

The hay crop was below the average, but it was well saved. Fall wheat gave a crop which was several bushels above the average. Spring wheat also gave similar good crops. The barley crop was exceptionally good, as was also that of oats. In both these grains the crops in Ontario were the best had for many years. Pease and potatoes gave returns somewhat below the average. Field roots and Indian corn for fodder gave about an average yield.

The pastures were rather short in midsummer, but they improved later on. The year has been a successful one with dairy farmers, and their products have brought excellent prices. Fall apples were abundant, but winter sorts gave a light yield. Plums were light in crop, while other sorts of fruit gave nearly average returns.

Quebec.

A wet spring and a hot summer were unfavourable for the best results, and hence the grain crops in this province were not quite up to the average of past years. Although the yield was somewhat short the quality of the grain was good, and the prices realized were satisfactory.

The hot weather in summer had the most serious effect on the hay crop, which was considerably below the average; the pastures also in some localities suffered con-

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siderably. This somewhat lessened the output of dairy products, but the high prices which prevailed for butter and cheese were an offset to the shortage.

Potatoes also were below the average. Barley is said to have given a good crop, and was well saved. The unusual heat was favourable for indian corn, which gave a much better crop than usual.

The Maritime Provinces.

The spring was wet and cold, which delayed seeding, but subsequent heat brought the crop to ripeness very fast, and the quality of the grain was not quite up to the average. In Nova Scotia the hay crop was a little above the average, while in Prince Edward Island it is said to have been a little below the average. Oats gave a fair yield, and field roots gave less than an average crop. The pastures were good in the early part of the season, but suffered considerably during the hot period which followed. Indian corn gave excellent crops.

The apple crop is said to have been below the average, but the quality was excellent.

The Northwest Provinces.

In the great Northwest country the season has been a good one. On the whole it was favourable for crops. The spring opened early, and the weather was suitable for early seeding. The grain germinated evenly, and aided by plenty of moisture growth was very rapid. During the early part of August hot weather set in, which prevented the straw from growing too rank and hastened the ripening of the grain, so that the harvest was early. During the harvest period the weather was favourable, and the grain was saved in good condition. With the large area under crop the total product is said to have been over ninety-four million bushels of wheat alone, with eighty-six million bushels of oats and twenty million bushels of barley. The whole northern country is making wonderful progress; every year adds enormously to the acreage under crop and to the amount of grain available for export.

HEALTH OF ANIMALS BRANCH.

During the past year this branch of my department has been still further developed and organized.

The new quarantine stations at St. John, N.B., and Halifax, N.S., have been completed, and are now in full working order.

At Lennoxville, Quebec, which, as an important railway centre, has been selected as a suitable place for a quarantine station, small but convenient buildings are at present in course of erection.

At Bridgeburg, Ontario, a site has been leased, and a building will shortly be erected for the accommodation of imported stock held for quarantine or inspection. Meanwhile a small stable has been leased which serves the purpose for the present.

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At Emerson, Manitoba, it has been found necessary to enlarge the accommodation for incoming live stock, and work with this end in view is now in progress.

At Gretna and Bannerman, the points where the new lines of the Hill system cross the boundary between Dakota and Manitoba, new stations are at present being arranged for. Until they can be erected private stables conveniently located are being utilized.

Increased and improved accommodation is being provided at North Portal, Wood Mountain and Willow Creek, Sask., and at Pendant d'Oreille, Coutts and Twin Lakes, Alta.

At Kingsgate, B.C., where the new Canadian Pacific Railway line from Spokane enters Canada, one of our standard quarantine stations is in course of construction. The traffic over this new line promises to be very heavy, and this will to a large extent relieve both Gateway and Nelson, besides enabling me to discontinue the use of Rykerts as an inspection station.

Improvements have also been made to the stations at Midway and Victoria, B.C.

Much of the work above mentioned has been rendered necessary by the putting into effect of an important change in the quarantine regulations providing for the testing with mallein of horses imported from the United States, a matter of which further mention will be made.

It having been found necessary last year to increase the period of quarantine imposed on American hogs, from fifteen to thirty days, it was deemed advisable to apply the same rule to animals of this species imported from Europe. The period of detention in the case of the latter is reckoned from the clearance of the ship from her European port. In order to avoid confusion the same rule was made applicable to sheep imported from Europe. The new ruling may in some cases be the means of increasing by two or three days the period of quarantine formerly imposed on sheep, namely, fifteen days from the date of landing. Under the present system the period is a definite thirty days, which is none too long to ensure the safety of Canadian flocks.

The work of our officers at quarantine and inspection stations, especially on the international boundary, has been to a marked degree systematized and improved, and although there is still much to be done, I am glad to be able to report satisfactory progress.

During the year just past the work of stamping out hog cholera has been, to all appearance, almost completed. A few small recrudescences have taken place in Ontario, some of which occurred in the old quarantined area, and were evidently traceable to chronic cases which had survived previous outbreaks. In another instance a group of small outbreaks was traced directly to swill emanating from a summer hotel near the frontier, the provisions used in which were largely imported from the United States. The following figures indicate very clearly the progress made in dealing with this disease:—

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	Outbreaks.	Compensation.
1902-3..	360	\$36,029 75
1903-4..	151	21,352 35
1904-5..	52	7,042 73
1905-6 (5 months)..	30	839 34
1906-7..	23	2,193 66

In these figures are included six outbreaks in British Columbia involving 125 hogs and an expenditure in compensation of \$873.05.

Except in Ontario and British Columbia the disease has been unknown, although numerous suspected cases have been reported and investigated. This is a very satisfactory showing in view of the conditions which prevailed five years ago, when new centres of infection were constantly being discovered.

Although, through the work done at the experiment station at Antigonish, it has been conclusively shown that the malady locally known as Pictou Cattle Disease is due to the ingestion of Ragwort or *Senecio Jacobaea*, I have thought it advisable to continue the experiments in feeding sheep to which allusion was made last year. The evidence, so far obtainable, seems to indicate that sheep can eat the weed, whether green or dry, with impunity, but it will be necessary to continue the experiments for a slightly longer period before making any definite statement on this point. Sheep eat the weed very freely, and if it can be shown that they are proof against its injurious effects, they can be largely and very profitably used in the work of its eradication. As the nature of the country in which the weed is found and the condition of its agriculture are both such as to render the keeping of sheep on a somewhat extensive scale highly advisable, the matter of securing definite evidence as to the possibility of their use for the purpose above mentioned is one of considerable importance.

The success which attended the enforcement in 1904 and 1905 of the compulsory mange dipping order in the area infected with this troublesome skin disease was so marked, and the number of infected cattle was in the early part of last season so small, that the stockmen, feeling confident that the disease was under control, passed resolutions declaring general and compulsory treatment unnecessary, provided actual outbreaks were promptly and properly dealt with. Although, under range conditions, it is practically impossible to handle mange in this way, every effort was made to discover and quarantine infected herds, with the result that, until the approach of winter, the prospect was reasonably satisfactory. With the advent of cold weather, however, it soon became evident that the disease still existed to a serious extent in a number of herds, and as the winter was an exceptionally severe one, causing the cattle to drift for long distances and to huddle together for protection from the cold, it quickly spread, and many herds formerly clean were badly reinfected. The disease is now reported to be very prevalent, and it is expected that the mortality from its effects, combined with those of the extraordinarily severe winter and the consequent scarcity of feed, will be exceedingly serious. As a result, there is a strong feeling among stockmen in favour of the enforcement of the compulsory dipping order, and I think it likely that this course will be pursued.

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Sheep scab still exists to some extent in a few districts in Ontario. Every effort is being made to effect its eradication, but owing to slackness in reporting on the part of owners and veterinarians, it is extremely difficult to obtain timely information as to its existence. As a means of discovery, the present system of inspecting all export sheep as well as those exposed on the larger markets, is proving of the greatest value.

The policy of slaughter and compensation now followed in dealing with glanders is, I am pleased to say, giving excellent results. The expenditure, which was of course very large during the first year following its adoption, shows this year a marked decrease, while the indications are that the coming season will witness a most gratifying diminution in the number of outbreaks and a corresponding reduction in outlay. In some parts of the country where the disease formerly prevailed to a serious extent, it has been practically stamped out, while even in its greatest strongholds it is gradually being brought under control. In the western provinces, and particularly in Saskatchewan where it has existed to a serious extent for a great many years, the efforts of my officers were seriously handicapped by the constant introduction from the United States of animals affected with the disease in a latent form. Such cases could not well be detected by an ordinary inspection at the boundary, and I therefore, after careful investigation and consideration, obtained an amendment to the quarantine regulations providing for the testing with mallein of all horses imported from the United States. A regulation of this kind is naturally somewhat troublesome and difficult to enforce, but its necessity is evident in view of all the facts, and especially of the compensation now paid by this government for diseased animals.

During the year a special report on glanders was made to me by the Veterinary Director General. This report, the publication of which I thought advisable, has attracted much favourable comment and will, I think, be the means of inducing some other countries to adopt a policy similar to that now followed by this department.

The existence of tuberculosis in cattle, especially in some districts, continues to furnish reason for anxiety. As, however, no practical and effective method of dealing with this disease, other than by slaughter and compensation, has yet been discovered, I have not thought it advisable to make any change in the existing regulations. The policy of universal testing, to be followed by slaughter and compensation, if carefully and conscientiously carried out would, no doubt, eventually prove effective in ridding our herds of tuberculosis, but the cost would be enormous, especially in the case of pure-bred herds, and there would also be a very serious wastage not only of actually existing animals, many of which, as is well known, give a typical reaction to tuberculin when in reality very slightly affected, but of their future progeny, an even more important consideration when valuable breeding stock is in question.

The reliability of the Von Behring and other systems of preventive inoculation has yet to be demonstrated, and while this line of work is being closely watched by my officers, I do not think it wise to adopt or recommend others to adopt it at present.

The experiment in the open air treatment of tuberculous cattle, which has now been in progress since December, 1905, continues to be very interesting, and appears, so far at least, to be likely to furnish a partial solution of the problem. A statement

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of the full results to date will be found in the report of the Veterinary Director General.

Anthrax has as usual made its appearance in more than one locality during the past year. Stock-owners in infected districts are, however, becoming alive to the value of preventive inoculation, and now that our own laboratory, as will be seen later, is equipped to furnish fresh vaccine on shortest notice, it is to be hoped that the disease will be kept under proper control.

Maladie du coït, or Dourine, which has, for the past three years, been known to exist in southern Alberta, is still occasionally met with, several serious outbreaks having been discovered and dealt with during the past year. The experimental work in connection with this disease is being continued both at the branch laboratory on the quarantine station near Lethbridge and at the biological laboratory here. Its results, which are most interesting, will be found in detail in the report of the Veterinary Director General. I may say here, however, that any doubt which may heretofore have existed as to the identity of the disease has been entirely removed by the discovery, in February of this year, of the specific trypanasoma of Dourine in the vaginal discharge of a mare brought to the Lethbridge station for detention and observation. The fact that, although the disease has been known to exist on this continent for the last twenty-five years, this is the first time that the specific causal organism has been demonstrated in America, is evidence that the work done by the pathologists of the branch is of a high order.

The work of the laboratory which, begun on a small scale in 1902, has since undergone marked development, is becoming annually of greater value to the stock-owning public. Not only is it now possible to furnish to most of the farmers and veterinarians, who in constantly increasing numbers avail themselves of the privilege of forwarding specimens, absolute evidence as to the nature of the diseases affecting live stock, but in many cases to provide them with agents which will protect their remaining animals from attack. During the year I was fortunate in being able to secure for a period of six months, the services of a gentleman whose experience in the Pasteur Institute in Paris had qualified him to demonstrate to my pathologist and his assistants the methods of preparing the preventive vaccines of anthrax and black-quarter, and these preparations are now supplied to applicants on demand at a merely nominal price.

All the mallein used by the officers of the department has for some years past been manufactured in the laboratory, which will also this year, I hope, be in a position to supply tuberculin, that now used being imported from Germany.

The position of the Live Stock Commissioner having become vacant through the resignation of Mr. Hodson, I, last July, added the duties formerly performed by that officer to those of the Veterinary Director General, who thus holds a dual appointment. Under the new arrangement, more attention than was formerly possible is being paid to the transportation of animals and other matters pertaining to the commercial side of the live stock industry, which is constantly gaining in importance owing to the rapid increase in our export trade.

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The Canadian patentees were distributed among the provinces of the Dominion as follows:—

Ontario.	Quebec.	Manitoba.	British Columbia.	Nova Scotia.	New Brunswick.	Saskatchewan.	Alberta.	Prince Edward Island.	Yukon.
465	225	72	57	30	25	25	18	2	1

Patents issued to residents of Canada, with the ratio of population to each patent granted:—

Provinces.	Patents.	One to every.
British Columbia.....	57	4 043
Ontario.....	465	4.758
Manitoba.....	72	5.079
Quebec.....	225	7.654
Alberta.....	18	10.300
Saskatchewan.....	25	10.310
New Brunswick.....	25	13.415
Nova Scotia.....	30	16.451
Yukon.....	1	29.219
Prince Edward Island.....	2	50.709

Patents issued to citizens of foreign countries.

Countries.	Patents.	Countries.	Patents.
United States of America.....	4,281	Russia.....	8
England.....	330	Norway.....	7
Germany.....	201	Newfoundland.....	4
Australia.....	97	Netherlands.....	3
France.....	78	Mexico.....	3
New Zealand.....	41	Cape Colony.....	2
Sweden.....	34	Cuba.....	2
Belgium.....	23	Spain.....	1
Austria.....	23	Chili.....	1
Italy.....	20	Finland.....	1
Switzerland.....	12	Portugal.....	1
Denmark.....	10	Roumania.....	1
Transvaal.....	8	Luxemburg.....	1
Hungary.....	8		

Statement of the number of patents issued under the Act, on which the fees are paid for periods of six, twelve or eighteen years, at the option of the patentee; and of patents on which certificates of payments of fees were attached after the issue of patents originally granted for periods of six and twelve years.

Period for which Fees were paid on First Issue.			Patents on which Certificates were attached after issue.		Re-issues.
6 years	12 years.	18 years.	6 years.	12 years.	
6,091	6	24	607	27	8

The total revenue for the year ending March 31, 1907, was \$169,548.78, exceeding the receipts in all previous years, and resulting in an increase of \$13,227.35 over the same period in the preceding year, thus averaging a monthly increase of \$1,102.26.

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The total number of reports issued by the examiners during the year was 9,141, and 8 patents were surrendered and reissued.

Out of the total number of patents granted by this office during the year, there were 4,281 issued to inventors, or their assignees, resident in the United States, being seventy per centum of the whole issue.

This branch of my department receives regularly the official reports of patents from Great Britain, Australia, United States, France, Mexico and Japan, in exchange for the Canadian Patent Office Record.

I have again to urge that patentees and their solicitors should not delay until the last day in remitting partial fees of the six and twelve years' terms. If these fees are received after the expiry of either term, the patents will cease and determine, the commissioner not being vested with the discretionary power, under any circumstances, to revive them. A revival can only be secured by a private Act of Parliament, the obtaining of which entails considerable expense to the patentee. It may further be added that the Committee on Private Bills usually discourages applications of this kind, on the ground that no one should be denied the right of manufacturing, using or vending an invention which has become the property of the public; exceptional cases may arise, however, in which the patentee or the holder of the patent may be justly entitled to relief from parliament.

In dealing with applications under section 7 of the Patent Act (now section 44, Revised Statutes, 1906, compulsory license system), the requirements of the law in regard to manufacture have been kept in mind. The applications which have been granted are those relating to patents for inventions such as the following: An art or process; improvements on a patented invention when both patents are not held by the same person; appliances or apparatus used in connection with railways, telegraph, telephone and lighting systems, and other works usually under the control of public or large private corporations, and which appliances or apparatus cannot be installed or constructed without the consent of such corporations; and certain inventions which are manufactured or constructed only to order, and are not, according to custom, carried in stock.

In considering applications for extensions of time to manufacture and import, the law is applied according to its strict and literal meaning, and the applications are granted only when the applicant has clearly established to the satisfaction of the office, by affidavit or solemn declaration, that the failure to manufacture or import is due to no fault of his, but to reasons beyond his control. Although these applications continue to be quite numerous, it is seldom that such a case is made out as to warrant the granting of the application.

It is in the interest of both the applicants and the office that great care should be taken by applicants and their attorneys in the preparation of the papers and drawings which are required by the rules and forms.

The clerical work of this branch of my department in the matter of its transactions and correspondence is more prompt than at any time in its recent history, and

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I am further pleased to say that the condition of the work in the examiners' divisions has greatly improved, with the gratifying result that applications are now considered and dealt with within a month to three months from the date of filing, instead of as in former years, from six to eighteen months.

IV.—COPYRIGHTS, TRADE MARKS, INDUSTRIAL DESIGNS AND TIMBER MARKS.

STATEMENT of fees received by the Copyright and Trade Mark Branch from April 1, 1906, to March 31, 1907.

Months.	Trade Marks.	Copy- rights.	Designs.	Timber Marks.	Assign- ments.	Copies.	Totals.
1906.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
April.....	2,567 38	134 50	100 00	12 00	44 75	12 50	2,871 13
May.....	3,179 00	88 50	80 00	4 00	44 00	31 50	3,427 00
June.....	2,890 50	118 50	37 00	10 00	18 00	46 85	3,120 85
July.....	2,820 55	107 50	30 00	18 50	23 00	5 25	3,004 80
August.....	1,664 50	143 48	49 00	4 00	22 00	9 55	1,892 53
September.....	2,299 00	91 50	50 00	14 50	56 00	5 00	2,516 00
October.....	2,367 50	115 50	49 00	16 00	151 00	13 00	2,712 00
November.....	2,728 47	125 50	95 00	6 00	37 00	26 25	3,018 22
December.....	2,085 25	177 00	55 00	4 00	39 00	3 00	2,363 25
1907.							
January.....	2,400 70	97 50	25 00	20 00	36 00	24 50	2,603 70
February.....	1,960 00	94 50	156 00	6 50	32 00	16 00	2,265 00
March.....	3,045 50	115 65	94 00	10 50	23 00	24 00	3,312 65
Totals.....	30,008 35	1,409 63	820 00	126 00	525 75	217 40	33,107 13

The fees received during the twelve months ended March 31, 1907, show a very substantial increase over the receipts for the previous twelve months, the figures being:

April 1, 1905, to March 31, 1906.....	\$27,032 22
April 1, 1906, to March 31, 1907.....	33,107 13
Increase (being 22 per cent).....	6,074 91

The particulars of the registrations made by the Trade Mark and Copyright Branch of the Department of Agriculture during the year ended March 31, 1907, are as follows:—

I. Copyrights—

Full copyrights without certificates.....	999
Full copyrights with certificates.....	147
Temporary copyrights without certificates.....	18
Temporary copyrights with certificates.....	5
Interim copyrights without certificates.....	42
Interim copyrights with certificates.....	17
—	1,228

II. Trade Marks.....	1,119
Renewals of specific trade marks.....	17

III. Industrial Designs...	125
Renewals...	10
IV. Timber Marks...	47
V. Assignments...	282
<hr/>	
Total registrations...	2,828

The following table shows a comparative statement of the business of this branch from 1897 to 1906, inclusive:—

Year.	Letters Received.	Letters Sent.	Copyrights Registered.	Certificates of Copyrights.	Trade Marks Registered.	Industrial Designs Registered.	Timber Marks Registered.	Assignments Registered.	Fees Received.
									\$ cts.
1897.....	2,606	3,548	756	273	446	75	13	94	14,101 93
1898.....	2,576	3,453	734	275	423	136	15	114	13,535 17
1899.....	2,487	2,910	702	237	430	112	5	117	14,161 28
1900.....	2,679	3,213	893	247	447	126	22	136	14,782 53
1901.....	2,605	3,211	888	249	521	146	24	183	16,823 26
1902.....	2,687	3,257	900	196	528	164	26	222	17,703 09
1903.....	2,687	3,211	900	176	557	88	23	272	18,086 25
1904.....	2,858	3,293	1,106	228	621	107	25	118	20,647 30
1905.....	3,367	3,902	1,130	189	661	139	22	154	23,706 77
1906.....	5,340	5,193	1,228	169	1,119	125	47	282	33,107 13

V.—PUBLIC HEALTH AND QUARANTINE.

Plague, cholera and smallpox have continued their ravages during the past year, and have called for ever-continued vigilance at my quarantine and inspection stations.

Plague has prevailed in Arabia, Argentine, Australia, Brazil, Chile, China, Ecuador, Egypt, Hawaii, India, Japan, Mauritius, Paraguay, Persia, Peru, Philippine Islands, Russia, Siam, Straits Settlements and Turkey.

In Japan this disease showed its usual annual seasonal incidence, with a reported number of some 2,064 cases and 1,686 deaths.

Cholera was present in Ceylon, China, India, Philippine Islands, Russia, Siam and the Straits Settlements.

Smallpox has been pandemic, few parts of the world, if any, entirely escaping its inroads. It has presented itself at several of my stations, but has been arrested and stamped out there.

An outbreak of this disease this winter in parts of Nova Scotia and New Brunswick has caused me to afford quarantine protection to Prince Edward Island by the appointment of a temporary medical inspector for arrivals from the mainland at Cape Traverse.

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Local outbreaks and a partial recrudescence of this disease in threatening form in some of the western states of the neighbouring Union, bordering upon Canada, has caused me to appoint special temporary medical inspectors at some of the frontier ports of entry. The places at which such inspectors have been appointed are Victoria, Vancouver, Blaine, Huntingdon, Greenwood, Grand Forks, Rossland and Gateway, with guards acting under the medical officers where required.

With regard to leprosy, the action foreshadowed in my last report has been carried into effect by the passing of 'An Act respecting Leprosy,' assented to on June 26 last. By this Act I have assumed for the Government of Canada the jurisdiction over, and administration of, the leper colony at Darcy Island, B.C., and leprosy generally throughout the Dominion.

Circulars of warning and instructions have been sent to my coast and frontier public health officers from time to time, as occasion demanded.

The diseases which have been brought to my maritime quarantine stations during the year are : Smallpox, beri-beri, diphtheria, scarlet fever, measles and chicken-pox.

A new feature in public health work is presented by the unprecedented influx of Hindus into British Columbian ports. These people come from India via Hong-Kong, thus bringing us into further communication with countries where epidemic diseases, notably bubonic plague, cholera and leprosy, are prevailing.

It is with regret that I have to record the deaths within this year of two of my quarantine officers: that of Dr. John Macdonald, of Chatham, N.B., and that of Dr. John Edgar March, of Partridge Island, St. John, N.B.

VI.—CENSUS AND STATISTICS.

In the early part of the year the Census and Statistics Office was employed in completing the preparations for taking the census of Manitoba, Saskatchewan and Alberta. Three members of the office staff were appointed to take charge of the field work, viz., E. H. St. Denis, secretary of the office, in Manitoba; J. C. Macpherson, in Saskatchewan, and E. S. Macphail, in Alberta. The electoral districts of the provinces were divided into subdistricts, to each of which an enumerator was appointed, and at meetings held in each district the enumerators were sworn into office and instructed for the work.

By the proclamation of the Governor General the time fixed for the census was midnight of Sunday, June 24, and on Monday following the enumeration began. This census, as the Act provides, was limited to population and agriculture.

Under the head of population, the returns have been compiled to show for townships the number of males and females, and for electoral districts the families, conjugal condition, age and birthplace of the people. Immigrant returns are compiled to show the number living in the provinces at the date of census-taking by country of birth, together with the number arrived in Canada previous to 1851, by five-year periods from 1851 to 1900 inclusive, and by single years from 1901 to June 24, 1906. For the

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last of these periods immigrant returns are also compiled by single years to show country of birth.

Under the head of agriculture, the returns have been compiled to show for provinces and districts the number of farms, of horses, cattle, sheep and swine, of acres and products of wheat, oats, barley, rye and flax, potatoes, sugar-beets and other field roots, and of cultivated hay for the season of 1905, and areas of the same crops for 1906. For the latter year products are being obtained from a large number of correspondents from which averages are computed.

The compilations of the census are finished, and a preliminary report has been printed to show the population by townships and a summary of the agricultural statistics by provinces and districts. The tables for the final report are nearly ready for the printer. A summary of the census in totals for the three provinces is given in the following table for population, comparatively for 1901 and 1906:—

Schedule	1901.	1906.	Increase.
Population	419,519	808,863	389,351
Males	228,960	440,367	237,352
Females	190,557	368,496	151,999
Total in Manitoba	155,211	305,688	110,477
Total in Saskatchewan	91,379	257,763	166,484
Total in Alberta	71,922	185,412	112,390
British born	428,882	807,928	239,044
Foreign born	86,182	239,030	149,848
Born in Canada	277,755	444,366	166,611
Born in British Islands	30,149	122,063	71,623
Born in America (United States)	24,977	78,740	33,509
Born in Germany	4,455	14,191	9,736
Born in Norway and Sweden	1,895	15,708	11,933
Born in Italy	23,409	34,104	10,665
Born in United States	20,740	90,738	69,939
Born in other countries	11,647	26,652	14,006
Born at sea and not given	1,440	1,901	459
Immigrants living	*140,362	†364,774	224,412

* As date of March 31, 1901.

† As date of June 24, 1906.

The population of the three provinces was nearly doubled in the five years, the rate of increase being 93 per cent. Of the total increase of 389,351, Manitoba's proportion was 28 per cent, Saskatchewan's 43 per cent and Alberta's 29 per cent. The British-born constituted 61 per cent and the foreign-born 39 per cent of the whole increase—the born in Canada being 43 per cent, in the British Islands 18 per cent, in the United States 18 per cent, and elsewhere 21 per cent. Seventy per cent of the whole population is British-born and 30 per cent is foreign-born. The 122,063 born in the British Islands comprise 84,800 born in England, 10,900 in Ireland, 27,700 in Scotland, 1,298 in Wales and 203 in the lesser isles. The 444,366 born in Canada comprise 1,277 born in British Columbia, 146,837 in Manitoba, 3,514 in New Brunswick, 5,990 in Nova Scotia, 162,202 in Ontario, 2,957 in Prince Edward Island, 19,905 in Quebec, 46,987 in Saskatchewan, 5,400 in the Northwest Territories and 8,366 in Canada not given for provinces. The number of immigrants living grew from 140,362 in 1901 to 364,774 to the date of June 24, 1906, being an increase of 160 per cent in the five years.

The number of occupied farms in the three provinces in 1906 was 120,439, being an increase of 65,814 since 1901. In Manitoba the increase was 3,629, in Saskatche-

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wan 41,407, and in Alberta 20,778. The number and increase of live stock are shown in the following table, comparing the census results of 1901 and 1906:—

Live Stock.		1901.	1906.	Increase.
Horses.....	No.	340,326	682,919	342,590
Milch cows.....	"	244,216	384,006	139,790
Other horned cattle.....	"	698,409	1,560,592	862,183
Sheep and lambs.....	"	182,616	304,531	121,915
Swine.....	"	200,375	439,048	238,673

In three classes of farm animals, namely, horses, cattle not milch cows, and swine, the number more than doubled in the five years, and in milch cows and sheep and lambs the increase for each was about 60 per cent.

Comparative areas of principal field crops on farms are shown in the next table for the growing seasons of 1900 and 1906:—

Kinds of Crops.	1900.	1906.	Increase.
	Acres.	Acres.	Acres.
Winter wheat.....	947	85,199	84,252
Spring wheat.....	2,494,519	4,895,245	2,400,726
Oats.....	833,390	2,322,646	1,489,256
Barley.....	162,557	529,163	366,606
Rye.....	3,276	14,431	11,155
Flax.....	1,471	131,817	130,346
Potatoes.....	25,611	51,129	25,518
Other field roots.....	2,154	12,395	10,241
Forage crops.....	60,496	49,656	10,840
Totals.....	3,584,421	8,091,681	4,507,260

The areas of wheat and barley have doubled in six years, the areas of oats and rye have trebled, and the areas of all the principal field crops have more than doubled, their increase being 126 per cent. The area of summer-fallow land sown to fall wheat in 1906 was 13,889 acres, and to spring wheat 1,115,830 acres.

The number of occupied townships in the three provinces (including parishes) increased from 2,415 in 1901 to 4,449 in 1906, and Indian reserves increased in the same period from 81 to 88. The number of cities, towns and incorporated villages in the three provinces in 1906 was 184.

The Canada Year Book, 1905, was brought out during the year. This is the first volume in the second series of Canadian statistical abstracts, and is confined to statistics of the Dominion for the period since the federal union. A record of public events of the year is a feature of the new series, and comparative tables of information contained in departmental and census reports show the progress of the Dominion from year to year and period to period. This year book is not intended to be an exhaustive treatise of statistics. It is an official handbook of events and tables that present in brief, orderly and sequent arrangement the official records of the country contained in the scores of bulky volumes in which the original documents are printed. This is the purpose of every handbook, which has in a wide sense the same relation to the

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public interests and affairs of a country as the general statement or balance sheet of a counting-house or other business establishment has to its ledger accounts. In scope and extent the 328 pages of tables in the Canada Year Book compare favourably with the 392 pages in the statistical year book of France, the 420 pages in the handbook of Austria-Hungary, the 650 pages in the statistical abstract of the United States, the 424 pages in the statistical year book of Belgium, the 369 pages in the statistical abstract of the United Kingdom, the 360 pages in the British statistical abstract for foreign countries, the 444 pages in the statistical abstract for the British colonies and possessions, and the 220 pages in the statistical abstract for the British Empire. All these are strictly what they profess to be, namely, a summary of comparative statistics for the several countries extending over a series of years.

Eleven thousand copies of the Canada Year Book, 1905, have been printed in English and 2,000 in French. About 8,900 copies of the English edition have been distributed during the year, which is 2,000 more than the whole distribution of the previous volume to the present time.

A bulletin has been prepared and printed during the year on the wage-earners of Canada by occupations, comprising 105 pages of tables and 28 pages of introduction. Statistics are given for 661,485 males and 153,445 females at regular and extra employment in 1,621 kinds of occupations during the last census year, and the aggregate wages for the year are shown to be \$286,534,850.

The compilation of returns of the industrial establishments of the Dominion will be finished early in May. These statistics will show that great progress has been made in manufactures during the past five years, both in the amount of capital and the number of workmen employed and in the value of production.

The Dominion tables of criminal statistics for 1905 are in the hands of the printer, and the volume should be in type before the end of April. The tables for 1906 are under way, and the staff on this work having been strengthened, it is hoped that the annual volume will hereafter be brought out speedily following the close of the statute year for this class of statistics.

Preparations are now being made for taking through the post office a census of live stock, and the principal field crops of Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island for the season of 1907.

The whole respectfully submitted.

SYDNEY A. FISHER,
Minister of Agriculture.



Seed Laboratory—Section for germination tests.



Seed Laboratory Section for purity tests.

PUBLIC HEALTH.

No. 1.

REPORT OF THE DIRECTOR GENERAL OF PUBLIC HEALTH.
(F. MONTIZAMBERT, I.S.O., M.D.Ed., F.R.C.S.E., D.C.L.)

March 31, 1907.

SIR,—I have the honour to submit this my report as Director General of Public Health from November 1, 1905, to this date.

The most important public health event during this period has been the passing in June last of 'An Act respecting Leprosy.' By this Act the government of Canada, already seized of the administration of the Leper Lazaretto at Tracadie, N.B., has assumed control of the Leper Lazaretto at Darcy Island, B.C., with the administration of leprosy generally throughout the Dominion of Canada. And this administration is to be by and subject to the direction and control of the Minister of Agriculture.

The usual threatenings of epidemic disease have continued since my last report.

Strict measures, ordinary and special, have therefore been approved by you for the sanitary protection of the country.

Circulars of warning and instruction were issued from time to time to the regular quarantine officers and to the customs officers, who are also ex-officio quarantine officers at the unorganized maritime and inland ports.

Frontier inspections for smallpox at threatened ports of the international border, and extra inspections at some of the maritime ports, have been maintained as the conditions to the south of us have seemed to require.

The British Medical Association met in Toronto in August last, the second time only that that association has been convened at any place outside the British isles. There were over 2,000 members registered as present, besides many invited professional guests from the United States. Your Director General of Public Health had the honour of being appointed President of the Section of State Medicine.

The Canadian Medical Association also met in Toronto in August, and the American Public Health Association in Mexico, Mexico, in December, 1906. At that meeting the following resolution was passed:—

'Federal Departments of Health.—Whereas, the American Public Health Association is of the opinion, and has heretofore so expressed itself, that public health matters confronting the four countries embraced in this association can only be adequately administered by extending the powers and duties of their several chief executive and administrative health officers; and whereas this association believes that such questions can only be satisfactorily dealt with by the establishment of a national department of health, with a cabinet minister at its head, in each country.

'Therefore, this association, with a view to prosecute so desirable an end, creates a committee consisting of three members from each of the four countries represented in the association, and to be nominated by the president, the first-named member for each country to be chairman of that subcommittee, and the chairman of the subcommittee of the United States to be its general chairman. This committee shall formulate what in the opinion of the association should be the extent of the work, powers, and duties of a national department of health, and the subcommittee of any of the

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four countries shall take any steps deemed practicable by it to carry out the purpose of this resolution, and to this end be empowered to enlarge its committee as it may deem proper.'

The arrival at Victoria and Vancouver, B.C., of over 2,000 Hindus last year marks a new element in quarantine and public health work. Coming as they do from India, they increase the threatening introduction of plague, cholera and leprosy, all of which diseases are widespread and persistent in that country.

The Public Health service has to deplore the loss of two most efficient officers, Dr. J. Macdonald, quarantine officer of Chatham, N.B., who died at the age of 54, after over 22 years' service; and Dr. G. C. Jones, assistant at Halifax, N.S., who resigned on accepting promotion in the Militia Medical Service.

GROSSE ISLE, QUE.

Vessels inspected at this station: 402 at Grosse Isle, and 34 at its sub-station of Rimouski. Number of persons inspected, 114,799.

Sixty-four vessels arrived with infectious disease.

The admissions to hospital were 609. They included cases of smallpox, scarlet fever, measles, diphtheria, chicken-pox and enteric fever.

The deaths reported as having occurred during the voyage numbered 12.

The deaths in hospital were 10.

The additions to the administration building in the western division now under construction, and to the laboratory and steam laundry near the hospital for which provision has now been made in the estimates will fill much felt wants.

The carrying out of the western wharf into deep water so that infected vessels might come to it for immediate treatment and disinfection continues to be a matter that is of the greatest importance in the interest of the shipping and the passengers.

The approaching completion of the new quarantine steamer *Alice* is being awaited with great interest.

The question of the replacing of the old wooden detention sheds, which date from 1832 and 1848, by brick buildings with modern appliances becomes more and more urgently pressing each year.

HALIFAX, N.S.

Vessels inspected, 402. Persons inspected, 94,632.

Nineteen vessels arrived with infectious disease.

Thirteen vessels reported deaths during the voyage.

The admissions to hospital were 26. They included cases of smallpox, chicken-pox, diphtheria, scarlet fever and measles.

One death occurred from smallpox.

A new inspecting boat is much needed for this station.

Dr. Guy Carleton Jones, the very efficient medical assistant at this station, has resigned upon accepting promotion in the Militia Medical Service.

He has been replaced by your appointment of Dr. J. J. Doyle.

ST. JOHN, N.B.

Vessels inspected, 310. Persons inspected, 41,882.

Twelve vessels arrived with infectious disease.

The admissions to hospital were 76. The diseases were scarlet fever, diphtheria, measles, cerebro-spinal meningitis, and chicken-pox.

A larger steam sterilizer and a deep-water wharf are the most pressing needs at this station.

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SYDNEY, C.B.

Vessels inspected, 111.

No quarantinable disease presented itself.

An artesian well has been sunk for a water supply.

LOUISBURG, C.B.

Vessels inspected, 29.

No quarantinable disease.

CHATHAM, N.B.

Vessels inspected, 69.

No quarantinable disease.

Dr. J. M. Baxter has been appointed by you to replace the late Dr. Macdonald.

CHARLOTTETOWN, P.E.I.

Vessels inspected, 14.

No quarantinable disease.

The roadway to the quarantine buildings at Keppoch has been completed, and the difficulty of access has thus been obviated.

WILLIAM HEAD, B.C.

Vessels inspected, 254.

The Asiatic immigration has again increased, the Japanese emigrating from their country more freely than while the war lasted, and a considerable Hindu immigration having set in. Of these people, 2,453 have arrived during the period covered by this report.

In one case of leprosy and one of enteric fever the diagnosis was definitely established in the laboratory.

The new quarantine steamer *Madge* is approaching completion, and promises to be very satisfactory.

VICTORIA, B.C.

Vessels inspected, 4.

No quarantinable disease.

VANCOUVER, B.C.

Vessels inspected, 3.

No quarantinable disease.

TEMPORARY FRONTIER AND COAST INSPECTION.

In addition to these regular stations, you have given the country the protection of extra inspecting officers at the following points where, from time to time, peculiar threatenings of disease seemed to make its importation most to be feared:—In Ontario: Owen Sound, Sault Ste. Marie, Thessalon, Bruce Mines and Fort Francis. In Saskatchewan: North Portal. In British Columbia: Gateway and Kingsgate, Rossland, Grand Forks, Greenwood, Huntingdon and Blaine, with temporary inspection of all Puget Sound vessels at Victoria and Vancouver.

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THE LEPER LAZARETTO, TRACADIE, N.B.

There are now at this institution 16 inmates, 9 males and 7 females. One death has occurred during the period covered by this report.

Chaulmoogra oil continues to produce satisfactory results, especially in the early stages of the disease, and even in advanced cases it alleviates suffering and prolongs life.

The next season is to see the installation of a new 'laveuse-disinfecteuse' for the steam disinfection and washing of clothes, &c., at this lazaretto.

THE LEPER LAZARETTO, DARCY ISLAND, B.C.

There are now eight lepers at this lazaretto, all Chinese males. Their care was taken over by you from the government of British Columbia after the passing by the parliament of Canada of the Act respecting leprosy in June last.

The systematic use of chaulmoogra oil has been introduced here also. It is as yet too soon to expect any marked results.

LEPROSY GENERALLY.

By the Act respecting leprosy passed last summer the government of Canada has accepted the administration of leprosy throughout the Dominion of Canada.

PUBLIC WORKS (HEALTH) ACT.

The work under this Act having increased, and being likely still further to increase, a second inspector was appointed in June last. The inspection field was divided into two, with Winnipeg as its centre.

Insufficient compliance with the requirements of the Act and Regulations being found somewhat widely in the west, placards giving extracts from them are being prepared, and will shortly be issued for each camp. As soon as they are posted there should no longer be ignorance on these subjects either amongst the district medical officers or amongst the workmen.

The territory from Winnipeg east to the Atlantic ocean, Mr. C. A. L. Fisher, Inspector.—Diphtheria and enteric fever were the diseases that occurred. Mr. Fisher reports that on his several tours of inspection of the public works of the Dominion in his district he found the medical service given to be more numerous and complete, and the sleeping quarters and boarding of the men to be fully equal to the very good conditions in that way reported in his last report.

The territory west of Winnipeg to the Pacific ocean.—Dr. T. F. Chamberlain, inspector, appointed in June, 1906. He reports conditions good in some camps, but that the greater number of camps do not as yet meet the requirements of the Health Act.

It is trusted that the results of Dr. Chamberlain's first season's work and the posting of extracts from the regulations in all camps will this season lead to a more satisfactory condition of affairs.

I have the honour to be, sir,

Your obedient servant,

F. MONTIZAMBERT, I.S.O., M.D.Ed., F.R.C.S.E., D.C.L.,

Director General of Public Health.

The Honourable

The Minister of Agriculture,

Ottawa.

SESSIONAL PAPER No. 15

No. 2.

(G. E. MARTINEAU, M.D.)

GROSSE ISLE, QUEBEC, March 31, 1907.

SIR,—I have the honour to submit this my annual report of the St. Lawrence quarantine service from November 1, 1905, to March 31, 1907, covering a period of seventeen months.

There were 402 vessels examined at this station during that period of time, being an increase of 42 as compared with last year. Of these only five were sailing vessels.

The total number of persons inspected was 114,799, being an increase of 16,658, as compared with last year.

They were divided among the different classes of passengers, as follows:—

First cabin, 3,225; second cabin, 19,333; steerage, 61,606; cattlemen, 1,748; crews, 28,410; stowaways, 477.

It is more necessary than ever to call attention to the large number of stowaways arriving each year. Among those reported this season, a very large percentage were foreigners, who, along with those of British descent, are most undesirable people, many being diseased and most of them paupers.

Infectious disease was discovered or reported on 64 different occasions on the following vessels, named in the order of their first arrival at this station:—

SS. *Canada*, *Dominion*, *Numidian*, *Lake Manitoba*, *Sarmatian*, *Southwark*, *Mongolian*, *Montezuma*, *Hibernian*, *Monterose*, *Corinthian*, *Lake Champlain*, *Kensington*, *Sicilian*, *Lake Erie*, *Montreal*, *Lord Charlemont*, *Pomeranian*, *Carthagenian*, *Lake Michigan*, *Ionian*, *Ottawa*, *Cervona*, *Virginian*, *Mount-Temple*, *Virginian* (Allan), *Devona*, *Monmouth*, *Tunisian* and *Empress of Britain*.

The diseases so discovered or reported were smallpox, scarlet fever, measles, diphtheria, chickenpox, parotiditis and typhoid fever.

Smallpox.—SS. *Cervona*, Captain Stooks, sailed from Shields June 19, with 15 cattlemen, 39 crews and 2 stowaways, arrived at Quarantine at 11.40 p.m., June 30.

One of the cattlemen complained of fever, chills, severe headache and pain through the body. On examining him carefully we found a very suspicious rash that proved later to be smallpox.

That case was immediately removed to the smallpox hospital at Quarantine, and all those who had been in communication with him on board were landed for quarantine and observation.

Everybody on board having been vaccinated and the compartment occupied by the sick and by the other cattlemen having been thoroughly disinfected, the vessel was released at 4.45 p.m. on July 1.

No other case of smallpox having developed among those detained under observation, they were released, and left the station on July 18.

The patient having fully recovered, was discharged from smallpox hospital at Quarantine on July 31.

On several occasions parties arrived at Quarantine who had not been vaccinated and who had refused to allow the ship's surgeon to do so. However, when regulations were shown and explained to them, they allowed your quarantine officer to do so.

I beg to call attention to the very unsatisfactory manner in which the regulations concerning vaccination are carried out. This inspection is only made the day previous to arrival at Quarantine, is usually made by stewards, who issue 'Protection cards,'

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and we have quite often picked out cases possessing these cards who had never been vaccinated (at least successfully). It is quite a practice, we understand, for qualified passengers to obtain cards of protection, to pass these over to unqualified persons who wish to avoid vaccination.

I would respectfully advise following the method of the United States, and have each ticket endorsed by the ship's surgeon, and would also recommend that question No. 10 be changed to read: 'Have you personally satisfied yourself that each of the steerage passengers on board has been successfully vaccinated.'

I would also require the inspection of vaccination to take place immediately on leaving port.

Deaths during the voyage were reported on twelve different occasions, three of these were suicides, eleven being from diphtheria, delirium tremens, tuberculosis, heart failure, tonsillitis, emphysema and five from broncho-pneumonia.

This year has been one of the busiest ones for a long time at this Quarantine. There were six hundred and nine admissions at the hospital, and we had up to one hundred and seventy-seven persons at the same time at the hospital, suffering from different diseases.

The deaths numbered ten, two from diphtheria complicating scarlet fever, one from nephritis, complication of scarlet fever, six from scarlet fever and one from diphtheria.

There was also landed for burial at Quarantine the body of one child who had died from broncho-pneumonia on SS. *Mount-Temple*.

Quarantine Staff.—Dr. E. Belisle continued to be in charge of the Rimouski sub-station. I visited this advanced post, and coming up from thence on the mail steamer made a detailed inspection between Rimouski and Grosse Isle.

Improvements and Requirements.—The great deficiency and requirement at this quarantine continues to be that of a deep water wharf, the necessity of which was recognized and approved by the different companies of steamers carrying passengers.

I understand that the honourable the Minister of Public Works on one of his visits to the station, decided to have that improvement carried out, and in fact at two different sessions there were certain amounts of money voted for that purpose, but, for reasons unknown to me, nothing has been done yet.

At the two last sessions different amounts were also voted for the erection of a steam laundrying disinfecting apparatus, and for the extension of the eastern wharf, but for some reason or another these works have not been commenced yet.

The administration building at the western end is now under construction.

The much-needed second steamer has not yet been completed, but, I have reason to believe, that she will be ready early next season.

A new detention building for the accommodation of the second cabin passengers is required at the western end, also three new buildings, one for a laboratory near the hospital, one for the hospital steward, and the other one for the baker.

There are still some other works and repairs absolutely necessary, the list of which is in the hands of the Public Works Department and of our department.

All of which is respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

G. E. MARTINEAU, M.D.,

Medical Superintendent of the St. Lawrence Quarantine Service.

The Honourable

The Minister of Agriculture,

Ottawa.

No. 3.

(N. E. MACKAY, M.D., M.R.C.S.)

HALIFAX, N.S., March 31, 1907.

SIR,—I have the honour to submit my report for the seventeen months ended March 31, 1907.

The work at this station was uneventful during the seventeen months just closed. The port was visited once by one of the severer forms of quarantinable diseases. One of the minor diseases was found on the following steamers:—

- SS. *Tunisian*, from Liverpool, December 7, 1905, measles (1).
- SS. *Corinthian*, from Liverpool, December 18, 1905, measles (1).
- SS. *Parisian*, from Liverpool, December 24, 1905, measles (1).
- SS. *Numidian*, from Liverpool, January 16, 1906, measles (1).
- SS. *Parisian*, from Liverpool, January 27, 1906, diphtheria (1).
- SS. *Southwark*, from Liverpool, February 24, 1906, measles (4).
- SS. *Siberian*, from Liverpool, March 17, 1906, chickenpox (1).
- SS. *Numidian*, from Liverpool, March 25, 1906, measles (1).
- SS. *Southwark*, from Liverpool, March 31, 1906, measles (2).
- SS. *Virginian*, from Liverpool, March 29, 1906, measles (2).
- SS. *Kensington*, from Liverpool, April 16, 1906, measles (1).
- SS. *Norseman*, from Liverpool, May 25, 1906, measles (2).
- SS. *Dominion*, from Liverpool, November 19, 1906, chickenpox (2).
- SS. *Empress of Ireland*, from Liverpool, November 22, 1906, measles (1).
- SS. *Ionian*, from Liverpool, December 15, 1906, measles (1).
- SS. *Dominion*, from Liverpool, December 23, 1906, measles (1).
- SS. *Victorian*, from Liverpool, February 23, 1907, measles (2).
- SS. *Dominion*, from Liverpool, March 3, 1907, measles (1), scarlet fever (2).
- SS. *Canada*, from Liverpool, March 15, 1907, measles (1).

I was obliged to allow the two cases of scarlet fever and one case of measles ex. SS. *Dominion*, from Liverpool, March 3, to proceed to Portland, although booked for this port. It was impossible to get them to the station because of the ice in Eastern Passage, and our boat is not fit to go outside around Trump Cap except in very mild weather, and then at high tide. Indeed no boat can get to the station by this route with southerly or southeasterly winds, and there is no other way to get there. Then again there were twelve people to look after, and they could not all be accommodated in the infectious disease hospital in the city, and there was no other place to put them in, so I allowed them to proceed to Portland, and notified the quarantine officer there by telegram.

Our experience with quarantine work this season has amply demonstrated the fact that Lawlor's Island is not well or suitably located for winter work. It is all right for summer work, and the bulk of our work will always be in winter. Immigration in summer is by the St. Lawrence chiefly, and in winter by this port. It is doubtful, therefore, whether it is the part of wisdom to continue spending money improving the station at Lawlor's Island after the experience we have had this season.

The SS. *Pomeranian* arrived from London and Havre on February 21, with one of the steerage passengers sick with smallpox. This man had been ailing and confined to his room the entire voyage, and did not therefore come in direct contact with any except the four who occupied the apartments with him. Once it was ascertained that

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he was suffering from variola he was isolated in the hospital and every possible precaution taken to save the others from infection. The ship had 276 persons on board, classified as follows: 28 second-class, 170 steerage, 2 cattlemen, and 76 crew. As soon as the disease was diagnosed, the ship's surgeon vaccinated all on board who had not been vaccinated within seven years; but as he had no way to fix the time of previous vaccination, except the *ipse dixit* of the persons interested, which in these cases is always unreliable, he should have vaccinated all on board.

The vessel was sent to the station and disinfected with sulphur dioxide, mercuric chloride solution 1 in 800, and formaldehyde, and released. The 170 steerage passengers were landed with their effects, and detained for 18 days in quarantine, as were also all those on board known or suspected to have come in any capacity whatever in contact with the sick man. All these were bathed and their clothes and effects disinfected in the usual way. One immigrant refused vaccination.

The small pox patient died suddenly during convalescence from heart failure.

Deaths were reported to have occurred on the following ships on their voyage to this port:—

S.S. *Dominion*, December 5, 1905, acute meningitis (1).

SS. *Dominion*, January 6, 1906, fractured skull (1).

SS. *Corinthian*, January 24, 1906, measles (1).

SS. *Pretorian*, February 11, 1906, acute meningitis (1).

SS. *Corinthian*, February 27, 1906, lost overboard (1).

SS. *Virginian*, March 29, 1906, chronic bronchitis (1).

SS. *Canada*, April 6, 1906, chronic diarrhœa (1).

Brigantine *Down*, April 8, 1906, tumour of stomach (1).

SS. *Corinthian*, April 12, 1906, pneumonia (1).

SS. *Pretorian*, April 24, 1906, measles (1).

SS. *Empress of Ireland*, from Liverpool, November 22, 1906, heart failure (1).

SS. *Tunisian*, from Liverpool, March 3, 1907, lost overboard (1).

SS. *Virginian*, from Liverpool, March 10, 1907, lost overboard (1).

There were 402 vessels inspected during the seventeen months ended March 31, 1907.

The number of persons examined was 94,632. They were classified as follows: Cabin, 2,874; intermediate, 15,007; steerage, 50,797; crew, 25,658; cattlemen, 338.

There were 26 cases of sickness treated at the station, and all of these, with the exception of 3, were cared for in the infectious disease hospital in the city.

In winter, the buildings at the station, not having fire in them continuously, are cold and chilly, and unfit for the reception of the sick. I therefore sent them to the infectious disease hospital in the city, where comfortable quarters are always available for a few (we had only a few) at reasonable rates. This arrangement I fear may have to be continued the coming winter, as our own hospital is not likely to be ready for occupation. The delay in the completion of the hospital is largely due to the blundering of the architects, who failed to provide for the heating of the building in the original plans, and strange to say, this oversight was not discovered until the building was about finished. Then again, there is no water available for the hospital.

I have already brought to your attention the character of some of the work performed, and material used in this building.

I have again to bring to your attention the need of a new steamer, for the quarantine service of the port. The boat we have is old, unsafe and unsuitable for the work of this station. To carry a person sick with one of the infectious diseases in her, unprotected from the winter weather, a distance of four miles, is wrong. It should not be done. The lives of the sick should receive some consideration.

Mr. C. Thomson Schmidt, government inspector of steamers, has notified me that a new boiler must be put in her immediately after the winter work is finished. Under date October 25, 1906, he reports to me as follows:—

SESSIONAL PAPER No. 15

'I would respectfully beg to draw your attention to my last report of the boiler of the D.G.S. *Argus*. Will you kindly inform me whether you have brought this matter before your department, regarding the necessity of having a new boiler fitted in the tug *Argus* this year, the patches fitted have so far proved successful, but I do not consider that the boiler is in a condition to be relied upon, for the very important duties your vessel has to perform.

'When in conversation with you, you led me to understand that in all probability a new vessel would be placed upon this station within a year. I have heard nothing further in the matter, and therefore beg to draw your attention to the necessity of providing a new boiler for this vessel, to be installed upon completion of the present winter service.'

To my mind it is not worth while installing a new boiler in this old vessel. What we want and should have is a new steamer, properly fitted out for our work.

An inspecting station ashore and a wharf for our boat are necessary equipments for an efficient service. The best location in the city for such a station is the lumber yard, and it should be acquired at once for this purpose, by the department. There is a wharf there which could be made suitable for our boat easily, without very great outlay, and the vacant houses in the yard could be made, at a small outlay, tenantable, and the crew of the boat could live there and be available for duty at all hours, day and night.

The hospital when completed will supply a much needed want. An electric lighting plant is badly needed and should be installed without delay. The wharf will need extensive repairs early in the spring. Estimates of the cost of the necessary new works, repairs and improvements will be forwarded, at an early date.

The disinfecting plant and tank have been overhauled and repaired, and are at present in good condition for the winter's work.

Since my last report, my assistant, Dr. Jones, resigned, and Dr. J. J. Doyle has been appointed to fill the vacancy, and since his appointment he has taken considerable interest in his work, and will, I have no doubt, prove himself to be a good officer.

All of which is respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

N. E. MACKEY, M.D., M.R.C.S.,

Quarantine Officer.

The Honourable

The Minister of Agriculture,
Ottawa.

No. 4.

(J. H. SCAMMELL, M.D.)

ST. JOHN, N.B., April, 1907.

SIR,—I beg leave to submit the following report on the work of the station, covering 17 months, from November 1, 1905, to March 31, 1907.

During this period 310 vessels were inspected, carrying 41,882 persons.

A detailed statement is attached.

I am, sir,

Your obedient servant,

J. HENRY SCAMMELL.

Acting Quarantine Officer.

The Honourable

The Minister of Agriculture,
Ottawa.

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No. 5.

(HORACE RINDRESS, M.D.)

NORTH SYDNEY, March 31, 1907.

SIR,—I have the honour to submit my report for the seventeen months ending March 31, 1907.

During this period 111 vessels were inspected, 90 steamships, 54 transatlantic, 21 sailing vessels, 44 cisatlantic.

No quarantinable disease was found on any of these vessels, and all were inspected immediately on arrival with the usual care.

The buildings at the station are in fairly good condition, except the caretaker's house, which is in need of some repairs.

The new wharf is satisfactory, but the approach from the station to the wharf has not yet been completed. An artesian well has been sunk, and I think it will furnish a good supply of water.

I have the honour to be, sir,

Your obedient servant,

HORACE RINDRESS, M.D.

The Honourable

The Minister of Agriculture,
Ottawa.

No. 6.

(F. O'NEIL, M.D.)

LOUISBURG, March 31, 1907.

SIR,—I have the honour to submit herewith my report for this quarantine station for the seventeen months ended March 31, 1907.

The total number of vessels examined for the above period was 29, with 673 men.

I would again beg to suggest that some provision be made for suitable quarantine buildings for this station. This should be done as soon as possible.

I have the honour to be, sir,

Your obedient servant,

FREEMAN O'NEIL, M.D.,

Quarantine Officer.

The Honourable

The Minister of Agriculture,
Ottawa.

SESSIONAL PAPER No. 15

No. 7.

(PETER CONROY, M.D.)

CHARLOTTETOWN, P.E.I., March 31, 1907.

SIR,—I have the honour to submit my report for the seventeen months ended on March 31, 1907.

No quarantinable disease was brought to this port during the period above mentioned.

Inspections of vessels arriving from points beyond the line of exemption numbered fourteen.

The roadway to the hospital is now in first class order, a sufficiency of land having been purchased for the necessary widening of the road, and a convenient bridge constructed over the tide-washed portion.

On the authority of the Minister of Agriculture, as expressed in a telegram received on the 7th instant, from the Director General of Public Health, the hospital was handed over to the civic authorities for the reception of cases of smallpox, an outbreak of that disease having occurred in different parts of the province. As yet no case has been admitted, and it is not likely that there will be any, as the disease is now almost completely stamped out.

I have the honour to be, sir,

Your obedient servant,

PETER CONROY, M.D.,

Quarantine Officer.

The Honourable

The Minister of Agriculture,
Ottawa.

No. 8.

(A. T. WATT, M.D.)

VICTORIA, B.C., April 1, 1907.

SIR,—I have the honour to submit the following report regarding transactions at William Head quarantine station for the period of seventeen months, from November 1, 1905, to March 31, 1907.

During this period there were 254 vessels inspected. In comparison with previous months, there has been a slight increase in the number of vessels arriving. This may be attributed to the establishment of a new line to New Zealand and to an increase in the volume of shipping coming from Panama and Mexican ports. The work on the Panama canal and the construction of a railway across Mexico from the Gulf to the Pacific are enterprises which have required the bringing in of supplies by the ship load. The completion of this railway means the opening of a new trade route so that

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there will thus be a new point on the coast from which steamers will come to British Columbia ports. Steamers are now in fact on the way, which will inaugurate regular sailings from Mexico to British Columbia and return. The number of steamers coming from Oriental ports has increased since the cessation of the war between Russia and Japan, and larger and better steamers are constantly replacing the older vessels.

The number of Asiatic steerage passengers has considerably increased over the number coming in previous months. This is more particularly the case with the Japanese, which people while the war lasted, did not emigrate in any numbers. A new feature in the immigration here has been an unprecedented influx of Hindus. In the period of seventeen months covered by this report 2,453 arrived. These people mostly come from the northern districts of India and tranship at Hong Kong. This country has been brought, therefore, through the coming of these people, into communication with India, where infectious diseases, especially bubonic plague and cholera, are most prevalent.

As in previous years, all Asiatic steerage passengers have been given a bath and have had their clothing disinfected at ports of departure. This routine has also applied to the Asiatic members of the crew.

The passengers examined were 5,358 in the cabin, and 16,671 in the steerage, of the latter 4,643 were Chinese, 8,269 (including 1,015 women) were Japanese, and 2,453 were Hindus. Chinese members of crew numbered 8,237, and the Japanese were to the number of 2,930.

Cases of smallpox, typhoid fever, scarlet fever, and beri-beri, have been treated in the hospitals. Cases of measles and dysentery were also met with, but as the patients were convalescing and were properly isolated under care of ship surgeon, they were not removed to shore.

Smallpox was found on one vessel arriving here, and on three, reports were given of the disease having occurred en route. The SS. *Empress of India*, from Hong Kong, landed one of the Chinese steerage at Kobe, was there disinfected and reached here without further case. The vessel was held on arrival until the usual period of incubation had elapsed from time of disinfection at Kobe, being released March 1, 1906. The SS. *Empress of China* was treated in similar fashion on account of having landed a Chinese fireman with smallpox at Nagasaki. This vessel was given pratique April 18, 1906. The British SS. *Teucer*, arriving here May 23, 1906, reported a death having occurred from smallpox before reaching Singapore. Vessel was there disinfected and completed voyage without other cases developing. On March 17, 1906, the SS. *Tartar* reached William Head, having one of the steward's department in hospital with smallpox. The case had been isolated for eight days, but had not been discovered early, and the infection was already scattered, as three subsequent cases amongst the crew afterwards made manifest. Two of these cases occurred amongst the Chinese crew during the time they were detailed in quarantine and the third case was one of the members of the European crew, the case developing on board the steamer in Vancouver. The European members of the crew were not considered to have been exposed to infection to the same extent, and after the isolation of the patient in the hospital, there was thought to be little possibility of infection, so that the period of detention for these was made to date from then. This period did not cover the contingency of exposure to infection at the time of landing of infected bedding and baggage when the ship was fumigated at William Head. But danger through this was of a minimum description for the European members of the crew, and was not thought sufficient to reckon with or to warrant the dating of their quarantine from such time. The development of the case two weeks later, however, showed that there was an unsuspected exposure at the time of the landing of the baggage, &c. The SS. *Tartar* was sent down from Vancouver on the occurrence of this case and was disinfected again before proceeding to sea.

The improvements undertaken at the quarantine during the past seventeen months have been the installation of a new 60 horse-power boiler, a second set of storage bat-

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teries, and a hundred-light direct-connected generator. This generator will furnish the lights ordinarily required unless many people are in quarantine and will be much less expensive to run than the large dynamo put in for the lighting of all the station buildings. Telephones for communication between different buildings at the station have been purchased and are being put in place. The power-house has been further improved. A wooden partition has been replaced by a brick wall. The fire room has been enlarged through a new disposition of the coal bunkers. A new ward has been added to the smallpox hospital. This will be available as an observation ward or for convalescents or women. A set of bath rooms for use of physician visiting smallpox patients or for patients and nurses leaving, has also been added. The water service had a considerable amount spent on it during the past few months. The main has now been renewed wherever found necessary, and a new wire fence has been erected around the lake in the place of the rail fence most of which was burned down. Repairs were made to the copper sheathing and elsewhere on the wharfs, and preparations are now in hand for renewing part of the superstructure.

The completion of the new quarantine steamer *Madge* has been the greatest boon to the service at this station. This steamer has been constructed of steel and built to class A1 at Lloyd's. Length is 100 feet and beam 20 feet. She promises to be most staunch and seaworthy, and will easily sustain speed of 10 knots. The workmanship and finish given to this steamer reflect the greatest credit upon the builders, the Messrs. Bullen, of the British Columbia Marine Railways Company, Limited. This steamer was named, on your approval, in accordance with the suggestion made by the Director General of Public Health, that it be called after the wife of the superintendent of British Columbia quarantine. The compliment has been much appreciated.

Last August, I was given an opportunity, which was greatly appreciated, of attending the meeting of the British Medical Association in Toronto, and afterwards of visiting, in company with Dr. F. Montizambert, Director General of Public Health, the quarantine stations at Grosse Isle, St. John, and Halifax, also the lazaretto at Tracadie. The chance of seeing the arrangements at the other quarantine stations and of discussing various aspects of quarantine work with other officers, was most welcome.

By your instructions of date July 11, 1906, the lepers at D'Arcy Island, formerly under the care of the provincial government, have been taken in charge. A guardian has been placed on the island and a Chinaman with him to act as interpreter. Weekly supplies of fresh meat, fish, fruit and vegetables are sent to the island, and much is being done to ameliorate the lot of the unfortunates held there. One new case was admitted, making eight cases in all. Treatment of the cases with chaulmoogra oil is being pushed, and appropriate local applications and dressings given. Regular visits are made to the island and the general care and management of the institution given attention.

I have the honour to be, sir,

Your obedient servant,

A. T. WATT, M.D.,

Supt. B. C. Quarantine.

The Honourable,

The Minister of Agriculture,
Ottawa.

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No. 9.

(W. H. K. ANDERSON, B.A., M.B.)

VICTORIA, B.C., April 1, 1907.

SIR,—I have the honour to submit the following report of the laboratory work at William Head during the period of seventeen months from November 1, 1905, to March 31, 1907.

A case of typhoid and one of leprosy were diagnosed by use of the microscope. A sample of drinking water from the butts of a sailing vessel from Antofagasta was examined for typhoid bacilli. The laboratory was used also for clinical purposes.

I have the honour to be, sir,

Your obedient servant,

HAROLD ANDERSON,

Assist. Medical Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 10.

(R. L. FRASER, M.D.)

VICTORIA, B.C., April 1, 1907.

SIR,—I have the honour to submit my report for the seventeen months just ended. Since coasting vessels are exempt from inspection only those foreign vessels that for any reason failed to call at William Head were examined here.

Four foreign vessels were inspected and no contagious disease found on them.

I have the honour to be, sir,

Your obedient servant,

R. L. FRASER, M.D.,

Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

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No. 11.

(L. N. MACKECHNIE, M.D.)

VANCOUVER, B.C., April 2, 1907.

SIR,—I have the honour to submit this my report for the past seventeen months.

Three vessels have been examined, and no cases of contagious or infectious disease has come under my inspection.

I am informed by the city health officer that there are two cases of smallpox in the city at present.

I have the honour to be, sir,

Your obedient servant,

L. N. MACKECHNIE,

Quarantine Officer.

The Honourable

The Minister of Agriculture,
Ottawa.

No. 12.

(A. C. SMITH, M.D., M.A., C.M.)

TRACADIE, N.B., March 31, 1907.

SIR,—I have the honour to submit for the information of the department the following report on the Tracadie lazaretto for the seventeen months ended on this date.

There are registered to-day sixteen inmates—nine males and seven females. Included in this number is the patient referred to in my last report, in whom an apparent cure has been effected, and who remains with his family, at his home, under surveillance. No recurrent symptoms have yet presented themselves.

Classifying the remaining patients, we have six in the first stage of leprosy, five in the second, and four in the third, the final, stage. Three forms clinically are fairly distinguishable—the macular or eruptive, the anaesthetic, and the tubercular. One form usually shades slightly, or decidedly, into another.

Of those on our register eleven are of French, three of Icelandic, and two of English origin. The ages of the patients vary from twelve to sixty-four years. One patient died since the date of my last report, and one was admitted from a neighbouring province.

The past year has been unattended with events other than those of a routine nature. During the winter months there was much intercurrent illness among the inmates, necessitating constant attention on the part of the nurses and the physician. Notwithstanding the repulsive and distressing nature of their disease, lepers cling to life, and when ailing are eager for medical care and treatment.

I have again to report that chaulmoogra oil, in combination, is being freely used, and with beneficial results. On March 20, 1905, a patient was admitted to the lazaretto.

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etto showing well-marked leproic symptoms. I have reason to believe that she had contracted the disease some years ago while attending a leprous relative who refused to enter the lazaretto. This woman began the use of chaulmoogra oil, strychnia, creolin, frequent baths, &c., immediately on admission. The macular patches and other symptoms have already disappeared. I cannot yet advise her discharge, as a too hasty removal from the institution would probably lead to discontinuance of treatment, and a return of the disease. I believe that chaulmoogra oil, in combination, will cure leprosy if begun before serious inroads have been made on the constitution, and if maintained long enough. Even in advanced cases it mitigates the sufferings, keeps hope alive, and prolongs life.

For some time past we have used ichthyol, in the form of ointment, for ulcerating surfaces, and often with surprisingly good effect. An eucalyptus compound, used as a bath preparation, is being used in the leper home in Hawaii with very beneficial results. I have made application for the formula, and shall make use of it in the lazaretto.

The careful segregation of our lepers during the past few years has led to a notable diminution. All known cases are promptly removed to the lazaretto. Only three suspected cases remain outside. Over these I keep a constant supervision.

With the exception of one case, which does not yet come under sections 7 and 8 of the 'Act respecting Leprosy,' leprosy no longer exists in Cape Breton.

I have the honour to be, sir,

Your obedient servant,

A. C. SMITH, M.D.

The Honourable

The Minister of Agriculture,
Ottawa.

No. 13.

(CHAS. A. L. FISHER, J.P.)

March 31, 1907.

SIR,—I have the honour to submit this my report for the seventeen months ended March 31, 1907, as Public Works (Health) Inspector, for the territory, from Winnipeg east to the Atlantic ocean.

During that period I have personally visited and inspected all such works covered by the Public Works (Health) Act, 1899, as have in any way been brought to my notice.

The term has again been an exceptional one, in the almost general non-appearance of contagious and infectious diseases among the men employed on the various public works of the Dominion, coming under my inspection, there being no outbreaks of smallpox, and only five cases of diphtheria, but in the neighbourhood of Fort William, Ont., there have been a good many cases of typhoid fever in the camp hospitals, mostly developing on new arrivals on the work.

I am pleased to be able to report again, that on my several tours of inspection of the public works of the Dominion in my district for the past year, I found the medical service given to be more numerous and complete, and the sleeping quarters and boarding of the men to be fully equal to the very good conditions in that way reported last year.

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The following is a detailed report of the works I have personally visited and inspected during the past seventeen months, as coming, more or less, under the regulations of the Public Works (Health) Act, 1899:—

RAILWAYS.

The number of public works coming under the regulations of the Act, in the territory east of Winnipeg, have been comprised almost exclusively of railway construction, the building of the National Transcontinental Railway, From Winnipeg to Quebec city, adding greatly to the number of those reported last year, and increasing the railway mileage of the Dominion to a considerable extent, and which will tend to open out a fine tract of agricultural land for immediate settlement.

NATIONAL TRANSCONTINENTAL RAILWAY.

This road is being built by the Dominion government, and at present two sections have been given out on contract between Winnipeg and the new Quebec bridge, and are now under construction.

I am pleased to report that on my visit to the works on said sections I found excellent hospital accommodation provided, the men comfortably housed and well fed, the camps in good sanitary condition, and a duly qualified physician as district medical supervisor over each section of camps, which could be conveniently covered by him within the requirements of the regulations.

There had been no outbreak of contagious diseases, and the health of the men had been excellent, with the exception of some cases of typhoid fever.

I give below the extent and location of camps, with other particulars of the works carried on by the various sub-contractors.

Section from Winnipeg east to junction of Grand Trunk Pacific branch, from Fort William, 245 miles. This is under contract to Mr. J. D. McArthur, of Winnipeg, about 3,000 men were employed thereon, located in thirty camps, spreading over 200 miles of the route.

J. K. McLennan, M.D., of Winnipeg, is the chief medical officer on behalf of the contractor, and has eight district medical officers, resident at various points along the route, and excellent hospital accommodation is provided where necessary.

Dugald, Man., Camps.—Charles Peterson, sub-contractor. These camps are fourteen miles from Winnipeg, and can be reached by team over a good road. Seventy-five men were employed on grading thereat, who were housed in comfortable board and tar-paper buildings and boarded by the sub-contractor.

There had been no contagious or infectious diseases, accidents or deaths, and the general health of the men, the water supply, and the sanitary conditions of the camps were good. The Winnipeg general hospitals would be used when necessary.

R. E. Davis, M.D., was the resident medical officer in charge.

Dugald, Man., Camps.—Mr. Herbert, sub-contractor. These camps are adjacent to the above, and thirty men were employed on grading thereat.

There had been no contagious diseases, accidents, or deaths, and the general health of the men, water supply, and sanitary conditions of the camps were good.

The Winnipeg hospitals were used when necessary.

R. E. Davis, M.D., was also the district medical officer of this work.

Whitemouth, Man., Camps.—W. Wardrop, sub-contractor. These camps are seven miles from Whitemouth, a station on the Canadian Pacific Railway, and can be reached by team from the latter place. One hundred and twenty-five men were employed on grading thereat, who housed and boarded themselves in shacks and tents. There had been no contagious or infectious diseases, accidents, or deaths, and their general health, the water supply and the sanitary conditions of the camps, were good.

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The Winnipeg hospitals were used when necessary. Walter Scott, M.D., was the resident district medical officer of the work.

Whitemouth, Man., Camps.—S. C. Hill & Son, sub-contractors. These camps are adjacent to the last ones reported, and situated at the crossing of Whitemouth river. Forty men were employed at bridge building thereat, fifteen of whom were housed and boarded in tents by the sub-contractors, the rest being resident in the neighbourhood.

There had been no contagious or infectious diseases, no deaths, and only one accident. The health of the men, the water supply and the sanitary conditions of the camps, were good. Walter Scott, M.D., was also district medical officer of this work.

Rennie Man., Camps.—F. W. Smith, sub-contractor. Rock work of one and one-half miles. Forty men were employed thereat, housed and boarded in log huts by the sub-contractor.

There had been no contagious or infectious diseases, or deaths, and only two accidents. The general health of the men, and the sanitary condition of the camps were good. The water supply was from wells, and latrines were provided. A tent was supplied for temporary hospital use but the Winnipeg hospital was used when necessary.

J. B. Snyder, M.D., C.M., was the resident district medical officer of this work.

Rennie, Man., Camps.—Kert & Rosenstein, sub-contractors. Rock work of three and one-half miles. About ninety men were employed thereat, housed and boarded in log camps by the sub-contractors.

There had been two cases of typhoid fever, one accident, one death, and the general health of the men, the water and the sanitary conditions of the camps were good.

A tent was provided as a temporary hospital, but the Winnipeg hospital was used when necessary.

J. B. Snyder, M.D., C.M., was the district medical officer of this work.

Rennie, Man., Camps.—J. V. Welsh, sub-contractor. Rock work of five miles. One hundred and fifty men were employed thereat, housed and boarded in lumber camps by the sub-contractor.

There had been no contagious or infectious diseases, accidents, or deaths, and the health of the men and the sanitary conditions of the camps were good. The water supply was from wells, and latrines were provided.

A tent was provided for temporary hospital use, but the Winnipeg hospital was used when necessary.

J. B. Snyder, M.D., C.M., was the district medical officer of this work.

Rennie, Man., Camps.—Smith & Prindible, sub-contractors. Rock work six miles. Fifty men were employed thereat, housed and boarded in log camps by the sub-contractors. There had been five cases of pneumonia, no accidents, two deaths, and the general health of the men had been good, and the sanitary conditions of the camps fair. The water supply was from wells, and latrines were provided. The Winnipeg hospital was used when necessary.

J. B. Snyder, M.D., C.M., was the district medical officer of this work.

Rennie, Man., Camps.—S. C. Hill, sub-contractor. Bridge and trestle work. Twenty-five men were employed, who were housed and boarded in log camps by the sub-contractor. There had been no contagious or infectious diseases, accidents or deaths, and the general health of the men, and the sanitary conditions of the camp, were good. Water was obtained from wells, and latrines were provided. The Winnipeg hospital would have been used if necessary.

J. B. Snyder, M.D., C.M., was the district medical officer in charge.

Dagiro, Man., Camps.—McPherson, McNaughton & Blake, sub-contractors. Rock work, four and one-half miles. These camps are north from Dagiro, a station of the Canadian Pacific railway, and twelve miles east from the Rennie Camps. One hundred and fifty men were employed thereon, and housed and boarded in lumber and log camps by the sub-contractors.

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There had been no contagious or infectious diseases, seven accidents and two deaths, and the general health of the men, and the sanitary conditions of the camps were good. The water supply was fairly good, being obtained from wells, and latrines were provided.

A tent was in use for temporary hospital purposes, but the Winnipeg hospital was used in case of necessity.

J. B. Snyder, M.D., C.M., was the district officer in charge at these camps.

Dagiro, Man., Camps.—Anderson & Johnson, sub-contractors. Rock work six miles. These camps are adjacent to, but east from the ones last-mentioned.

Two hundred and ten men were employed thereat, and housed and boarded in lumber camps by the sub-contractors. There had been two cases of typhoid fever, two accidents, no deaths, and the general health of the men, and the sanitary conditions of the camps good. The water supply was fairly good, being obtained from wells, and latrines were provided. A tent was supplied for temporary hospital purposes, but the Winnipeg hospital was used in case of necessity.

J. B. Snyder, M.D., C.M., was the district medical officer in charge of these camps.

Kalmar, Ont., Camp.—Anderson & Johnson, sub-contractors. Rock work and grading. This camp can be reached from Dagiro, Man., or from Kalmar, Ont., being about midway north of, and between the two stations named. Thirty-five men were employed thereat, housed and boarded in log camps by the sub-contractors. There had been no contagious or infectious diseases, accidents, or deaths, and the general health of the men had been good. The Kenora, Ont., hospital was used when necessary.

H. H. Christie, M.D., of Kalmar, Ont., was the district medical officer of this camp.

Kalmar, Ont., Camps.—Oleson & Larson, sub-contractors. Rock work and grading.

These camps are fifteen miles north from Kalmar, a station on the Canadian Pacific railway, and can be reached by team to Malachi lake, and then by boat.

Three hundred men were employed thereat, and distributed over five camps, No. 1 being at Lake Malachi, No. 2 west two miles, No. 3 west four miles, No. 4 west six miles, and No. 5 at Rice lake. The men in each camp were housed and boarded by the sub-contractors, in good board and log buildings. There had been five cases of typhoid fever, one originating on the work, the remainder contracted elsewhere, but there were no other developments of contagious or infectious diseases, and there were no deaths and one accident. The general health of the men, and the sanitary conditions of the camps were good. A permanent hospital was provided at camp No. 1, but the general hospital at Kenora, Ont., would be used when advisable.

The water supply was fairly good, and taken from wells and lake. Latrines were provided at each camp.

H. H. Christie, M.D., was the resident district medical officer.

Kalmar, Ont., Camps.—Guy Campbell, sub-contractor. Rock work principally and extending five miles. There were two main camps, known as No. 1 and No. 3, No. 1 being at Otter lake, and No. 3 two miles east. Two hundred men were employed thereat, housed and boarded by the sub-contractor, in comfortable log and frame buildings. There were no contagious or infectious diseases, no deaths, and only one minor accident. The general health of the men was good, and the condition of the camps throughout excellent.

Water from wells was used for drinking purposes, and lake water for general use. Latrines were provided at all camps.

The permanent hospital at camp No. 1 was used, but the general hospital at Kenora, Ont., would be used in case of necessity. H. H. Christie, M.D., was the district medical officer of this work also.

Kalmar, Ont., Camps.—Gordon Bros., sub-contractors. Rock work principally, extending two miles. Seventy-five men were employed thereat, located at two camps,

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one mile apart, and housed and boarded by the sub-contractors, in good log buildings. There had been one case of typhoid fever, and no accidents, but there was one death from suicide.

The general health of the men, and sanitary conditions of the camps, were good.

The water supply was from lake and springs, and was good. Latrines were provided at each camp. At camp No. 1 hospital quarters were provided, but the general hospital at Kenora, Ont., would be used if thought beneficial.

H. H. Christie, M.D., was the district medical officer of these camps also.

Winnipeg River Camps.—Chambers Bros., McQuigge & McCaffrey, sub-contractors. Ten miles of grading and rock work.

These camps are located fifteen miles north from Kenora, Ont., a station on the Canadian Pacific railway, and can be reached from there by boat up the Winnipeg river, to Winnipeg river crossing, thence over land one to two miles. Four hundred and twenty men were employed thereat, located in six camps, situated west of the Winnipeg river, and housed and boarded by the sub-contractors in comfortable board and log buildings.

There had been no cases of contagious or infectious diseases, with the exception of one of typhoid. There had been eighteen accidents, fourteen minor, and four fatal, the four deaths being the result of dynamite explosions.

The general health of the men, and the sanitary conditions of the camps were good.

The water supply was good, and was from lake and springs. Two latrines were provided for each camp. Temporary hospital quarters were provided, with a permanent hospital east of the McFarland river, and the general hospitals at Kenora, were used when necessary.

H. A. Abraham, M.D., was the resident district medical officer of these camps.

Winnipeg River Camps.—Dutton & McArthur, sub-contractors. Ten miles of grading and rock work. There were three camps situated east of the McFarland river, and three hundred men were employed on the work, who were housed and boarded by the sub-contractors in comfortable board and log buildings.

There had been five cases of typhoid fever, but no other cases of contagious or infectious disease. There were thirty-three accidents, and eight deaths. The general health of the men, and sanitary conditions of the camps had been fair.

The water supply was good, and two latrines were supplied for each camp. There was a permanent hospital conveniently located for the various surrounding camps, under charge of H. A. Abraham, M.D., who was the district medical officer of this work.

Winnipeg River Camps.—Dugal & Dow, sub-contractors for two miles of general construction work. There was only one camp with twenty-six men employed, who were housed and boarded by the sub-contractors in board and log buildings. There had been no contagious disease, no deaths, and one minor accident. The general health of the men, the water supply and the sanitary conditions were good. H. A. Abraham, M.D., had this camp under his charge as district medical officer.

Winnipeg River Camps.—N. Timpson, sub-contractor. There was one camp, situated four miles east of the Winnipeg river, with seventy-six men employed thereat, who were housed and boarded by the sub-contractor in lumber camps. There had been no contagious diseases, one death and four minor accidents.

H. A. Abraham, M.D., was the district medical officer of these camps.

Winnipeg River Camps.—Courtney & McRae, sub-contractors. Five miles rock and earth work. There was one camp east of Basket lake, and sixty men were employed on the work, who were housed and boarded by the sub-contractors in good log buildings. There had been no contagious diseases, accidents, or deaths.

H. A. Abraham, M.D., was the district medical officer in charge of the men.

Winnipeg River Camps.—Joe Purrica sub-contractor. Two rock cuts. There was one camp at Black river, at which twenty-five men were employed, and were housed and boarded in log buildings. There had been no contagious disease, accidents or deaths, the health of the men being good.

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H. A. Abraham, M.D., was the district medical officer of this camp.

Winnipeg River Camps.—Baulf & Stinson, sub-contractors. Four miles rock and earth work. There were two camps situated on the side of a lake, and one hundred men were employed on the work, who were housed and boarded by the sub-contractors in good log buildings. There had been no contagious diseases, one dynamite accident, and two deaths. The general health of the men has been good. The permanent hospital at Dutton & McArthur's Camp was used.

H. A. Abraham, M.D., was the district medical officer of these camps.

Vermilion Bay Camps.—Kupe & Bradshaw, sub-contractors. Grading and filling. These camps are located fifteen miles north of Vermilion, a station on the Canadian Pacific railway, and can be reached by team from there. One hundred and fifty men were employed thereat, housed in log buildings, and boarded by the sub-contractors. There had been no contagious or infectious diseases, three accidents, no deaths, and the general health of the men, the water obtained, and the sanitary conditions of the camps, all first class.

As other sub-contractors were about commencing work further along the route, a permanent hospital was being established, suitable for the above and other camps.

H. L. Sims, M.D., is the resident district medical officer of this work.

Vermilion Bay Camps.—J. Nicholson, sub-contractor, No. 1, and Sharpe, Lewis Woods & Lorenston, sub-contractors, No. 2.

These two camps were temporary ones, being for men cutting and clearing right of way. Sixteen men were employed and were housed and boarded under canvas by the sub-contractors.

There had been no serious disease, accidents, or deaths, the general health of the men being excellent.

H. L. Sims, M.D., was the district medical officer in charge of these men.

Vermilion Bay Camps.—Cunningham & Nelson, sub-contractors. Forty-two men were employed on this work, and were housed and boarded in good log buildings, by the sub-contractors. There had been no contagious or infectious disease, three serious accidents, but no deaths. The general health of the men had been very good, the water supply and the sanitary condition of the camp fair.

H. K. Sims, M.D., was the district medical officer in charge of this work.

Vermilion Bay Camps.—J. Woods & Co., sub-contractors. Twenty-nine men were employed on this sub-contract, who were housed and boarded in log buildings, by the sub-contractors. There had been no contagious disease, serious accidents, or deaths, and the general health of the men had been good.

H. K. Sims, M.D., was the district medical officer in charge of this work.

Vermilion Bay Camps.—D. McDonald, sub-contractor, grading and rock work. These camps were situated four miles east of camp No. 1, first above-mentioned. Forty-five men were employed thereat, housed and boarded in log buildings by the sub-contractor. There had been no contagious disease, three serious accidents, two from falling rock, and one from a falling tree, with one death. The general health of the men, the water, and the sanitary condition of the camps, had been excellent.

H. K. Sims, M.D., was the medical supervisor.

Vermilion Bay Camps.—W. T. Parsons, sub-contractor. Rock work chiefly. These camps are situated about eighteen miles from Vermilion Bay, and can be reached by team. Three hundred and fifty men are employed, who are located in nine camps, situated on Canyon lake, and housed and boarded in good log buildings, by the sub-contractor. There have been no contagious or infectious diseases, two serious accidents, but no deaths. The general health of the men has been good, and the sanitary conditions of the camps very fair. Good water is obtained from Canyon lake, and latrines are provided for each camp. A good hospital has been established at W. T. Parson's headquarters camp.

D. G. Dingwall, M.D., is the district medical officer residing at these camps.

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Vermilion Bay Camps.—Chas. Peterson, sub-contractor. Rock and sand work. One hundred and seventy-five men are employed on this sub-contract, who are located in three camps, and housed and boarded in log buildings by the sub-contractor. There have been no contagious diseases, only one serious accident, and no deaths. The general health of the men, the sanitary conditions of the camps, and the water supply, has been good. The permanent hospital at W. T. Parson's headquarters is used when necessary.

D. G. Dingwall, M.D., is the district medical officer of these camps.

Vermilion Bay Camps.—Geo. Jachetta, sub-contractor. Rock work principally. One hundred and fifty men are employed on this work, located in two camps, situated on Little Canyon lake, and are housed and boarded in good log buildings, by the sub-contractor. There have been no cases of contagious or infectious diseases, some minor accidents, and no deaths. The general health of the men, the sanitary condition of the camps, and the water supply, has been good. Latrines are provided, and the permanent hospital at Parson's head camp, is used when necessary.

D. G. Dingwall, M.D., is the district medical officer of these camps.

Dryden, Ont., Camps.—C. A. Phillips, sub-contractor, fourteen miles of rock and earth work. These camps are situated some eighteen miles north from Dryden, Ont., a station on the Canadian Pacific railway, and can be reached by team from there. Two hundred and forty-six men were employed on the work, who are boarded and housed in good log buildings, by the sub-contractor. There had been no contagious disease, six accidents, and three deaths from dynamite explosion. The general health of the men had been excellent, and the water and sanitary conditions of the camps good. A permanent hospital is established at these camps and is under the charge of John Brandon, M.D., as district medical officer.

Drydon, Ont., Camps.—P. W. McLean, sub-contractor, eight miles of earth and rock work. These camps are situated twenty-eight miles northeast of Drydon, and can be reached from there by team. One hundred and twenty men were employed on the work, who were housed and boarded in good log buildings by the sub-contractor. There had been no contagious or infectious diseases, no serious accidents, and no deaths. The general health of the men had been excellent, and the water and sanitary condition of the camps was good. Temporary hospital accommodation was provided, and the permanent hospital at C. A. Phillips' camps was used when necessary.

John Brandon, M.D., was the district medical officer of these camps.

Drydon, Ont., Camps.—Swan Swanson, sub-contractor. Eight miles of rock and earth work. These camps are situated two miles northeast from the last above-named, and can be reached by team therefrom.

One hundred and forty-five men were employed on the work, who were housed and boarded in good buildings by the sub-contractor. The general health of the men had been very good, and the water and sanitary condition of the camps, had also been good. There had been no contagious or infectious diseases, accidents or deaths. Temporary hospital accommodation was provided but the permanent hospital at C. A. Phillips' camps was used when the doctor thought it advisable.

John Brandon, M.D., was the district medical officer of these camps.

Eastern Section.—From La Tuque Village, southeast 100 miles, to junction of section of sub-contract let to Messrs. M. P. & J. T. Davis. This is under contract to Messrs. Macdonell & O'Brien, of Montreal. Fourteen hundred and twenty-five men were employed thereon, located in about twenty-five camps spreading along the route.

John McCombe, M.D., of Buckingham, Que., is the chief medical officer on behalf of the contractors, and has three district medical officers, resident at suitable points on the route, with a very excellent hospital established at Lake Masketsy, under charge of a district medical officer, nurse and caretaker, another one at St. Thecle, and a third one is established in the neighbourhood of La Tuque village.

La Tuque Camps.—O'Brien & Martin, sub-contractors for grading, &c., nine to ten miles.

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These camps are situated in the neighbourhood of La Tuque village, about fifty-two miles from Hervey junction, on the Great Northern railway, and can be reached by team, or by boat, when the water in the river permits.

Three hundred men were employed thereat, who were housed and boarded by the sub-contractors, with the exception of some who resided in the neighbourhood.

There had been no contagious or infectious diseases, no deaths and only one accident. The general health of the men, the water supply and the sanitary conditions of the camps were good. A tent was provided for temporary hospital accommodation, but a permanent hospital was about being established in a convenient place. Latrines were provided for each camp.

A. B. Cameron, W. J. Costello and T. Hewitt, M.D., have been appointed resident district medical officers of the camps, the latter in charge at present.

La Tuque Camps.—Jackson & Connolly, sub-contractors. There are two camps situated at Lac au Beauce, in the La Tuque district, at which forty-five men were employed, who were housed and boarded in log buildings by the sub-contractors.

There had been no contagious or infectious diseases, accidents, or deaths, and the general health of the men, the water supply and the sanitary condition of the camps, were good. Two latrines were provided, and also an hospital tent. The doctors last mentioned were the district medical officers of these camps.

La Tuque Camps.—A. Finlayson was the sub-contractor. There was only one camp, situated at Creek au Beauce, at which forty-five men were employed, housed and boarded in wooden buildings by the sub-contractor. There had been no contagious diseases or deaths, and but one accident. The health of the men, water supply and sanitary conditions were good. The aforesaid M.D.'s were the district medical officers of this camp also.

Reeds Camp.—Murdoch Bros., sub-contractors for grading rock work ten miles. These camps are situated about sixteen miles from Hervey junction, on the Great Northern railway, and can be reached from there by team.

One hundred and fifty men were employed thereat, who were housed and boarded in good wooden buildings by the sub-contractors.

There had been no contagious or infectious diseases, or accidents, one death, and the general health of the men, water supply and sanitary conditions of the camps were good, latrines being provided in each. A very excellent hospital was established at Lake Masketsy, about one mile from the camps, with access by road or water. It was provided with water-closet, bath, hot and cold water, &c., and was in charge of James Franckum, M.D., as resident district medical officer, who had a nurse and caretaker in charge.

Reeds Camp.—Kirk & Westerdale, sub-contractors for seven miles of grading and rock work. These camps are about three miles southeast from the last reported above and are reached by team. One hundred and fifty men were employed on this work, who were housed and boarded by the sub-contractors in good wooden buildings.

There had been three cases of typhoid fever, one accident, one death.

The general health of the men, the water supply and the sanitary condition of the camps, were good, latrines being provided for each camp.

The hospital at Lake Masketsy was used when necessary.

James Franckum, M.D., was the district medical officer of the camps.

Reeds Camp.—D. R. McDonald, sub-contractor for culvert building. This camp was situated on the government road, some miles southeast of the last reported. Fifty men were employed thereat, who were housed and boarded in tents by the sub-contractor.

There had been no contagious diseases, accidents or deaths, and all other conditions were good.

Dr. Franckum was the medical officer supervising the men.

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Reeds Camp.—Doheny & Donovan, sub-contractors for sundry grading and rock work. These camps were variously situated north from Reeds Station, and were reached by team.

Three hundred and twenty-five men were employed on the work, housed in good wooden buildings, and well boarded by the sub-contractors.

There had been no contagious diseases, three accidents and three deaths.

The general health of the men and the sanitary conditions were good, latrines being provided for all camps. The water supply was from wells, but was only of medium quality.

The hospitals at St. Theeile or Lake Masketsy were used. James Franckum, M.D., was the district medical officer in charge.

St. Prospère Camps.—Brennan & Munro, sub-contractors for bridge building.

These camps can be reached from Batiscan, Que., a station on the Canadian Pacific railway, then by team.

Eighty-one men were employed by this sub-contractor, and were housed and boarded by him in tents, or in surrounding houses. There had been no contagious diseases, or deaths, three accidents, and other conditions were good.

B. Bordeleau, M.D., was the district medical officer of the men employed.

St. Prospère Camps.—McInnes & McInnes, sub-contractors for grading, &c.

These camps can be reached from Grandine, a station on the Canadian Pacific railway. Eighty men were employed on the work, who were housed and boarded by the sub-contractors in good wooden buildings. There had been no contagious diseases, accidents, or deaths, and all other conditions were good. A temporary hospital in charge of Dr. Bordeleau, at St. Theeile, and the hospital at Lake Masketsy were used.

B. Bordeleau, M.D., was the district medical officer of the work.

Section from Quebec Bridge.—Fifty miles northwest. The contract for this work was given to Messrs. Macdonald & O'Brien, of Montreal, together with the section reported above as being constructed by them, but they sublet these fifty miles to Messrs. M. P. & J. T. Davis, of Quebec, who are constructing the same, with three sub-contractors under them, Messrs. Lothain, Rainboth, Roberge & Chagnon.

Seven hundred men are employed thereon, but there are no special camps, the men living in their own homes, or boarding with residents scattered along the line.

There had been no contagious or infectious diseases and no deaths, but there were four minor accidents. The general health of the men and the sanitary conditions were good, the water supply being fair.

J. P. Lavoie, M.D., of Quebec, was the chief district medical officer, with A. Marcotte, M.D., as resident district medical officer at St. Basile, P.Q., who had hospital accommodation provided.

Grand Trunk Pacific Railway.—Branch from Fort William to junction of National Transcontinental railway, 210 miles.

Messrs. Foley Bros., Larson & Co., are the contractors, with headquarters at West Fort William, Ont., and there are twenty-six sub-contractors.

About fifteen hundred men were employed, located at thirty-four camps along the route, housed in wood buildings and boarded by the contractors. The sanitary condition on the work was good, there being latrines at each camp. The general health of the men has been excellent, with the exception that forty-two cases of typhoid developed, owing to the poor quality of the water obtainable in the neighbourhood, most of them being new arrivals on the work.

There were three cases of diphtheria, and a few accidents, with six deaths in all.

Two well-equipped hospitals are maintained, both well located, and each in charge of a resident medical man, and a trained nurse, one at Kaministikia, the other at Grassey Narrows.

There are also two general hospitals in the neighbourhood, Dr. Ferguson, who was in charge of the hospital at Kaministikwia, Ont., developed symptoms of typhoid.

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fever, at the time of my last visit, and he went to the Toronto General Hospital, and was replaced by J. A. Speers, M.D.

F. J. Ewing, M.D., is the chief medical officer for the contractors, and makes his headquarters at Fort William, Ont.

CANADIAN PACIFIC RAILWAY.

Kenora Section.—Rock work extending over seventy miles. Messrs. Foley Bros., Larson & Co., are the contractors, and they in the early part of the season, were double tracking the line in places, from Fort William to Winnipeg.

One thousand men are now employed, who are housed and boarded in lumber camps by the contractors. There had been ten cases of typhoid fever, with two deaths therefrom, and five accidents. The general health of the men was otherwise good, as were also the sanitary conditions of the camps, the refuse being either burned or carted away, and box closets supplied and regularly cleaned. The general hospital at Kenora is used when necessary.

W. J. Gunne is the district medical officer of this work.

Toronto-Sudbury Branch.—Severn river to Barnesdale, twenty-eight miles. This was under contract to the Toronto Construction Company, and there were eleven sub-contractors, with thirty camps, in which about fourteen hundred men were employed, who were housed and boarded in tents and shacks by the sub-contractors, housed and boarded themselves, or lived in surrounding houses.

There had been six cases of typhoid fever, but no other contagious diseases. There had been a number of minor accidents, and twenty-five serious ones, with seven deaths, one from drowning, one found dead in bed, one dropped dead at work, two from premature explosions, and one from being crushed by rock falling. The general health of the men, the water supply and the sanitary conditions of the camps were good. The Bala and Parry Sound hospitals were used when necessary.

F. C. Ross, M.D., of Bala, Ont., and W. H. Limber, M.D., of Parry Sound, were the district medical officers of the camps.

Toronto-Sudbury Branch.—Coldwater to Severn River, Ont., about twelve miles. Messrs. Battle, Conlon, Harcourt & Armstrong, of Thorold, were the contractors. From one hundred to two hundred and fifty men had been employed, who were housed and boarded in board shacks by the contractors.

There had been no contagious or infectious diseases, with the exception of a couple of cases of typhoid fever, and they recovered.

There were five accidents, and two deaths, from explosions. The Midland hospital was used when necessary.

J. A. Harvie, M.D., of Coldwater, was the medical officer in charge, and he had one assistant. This work is now completed.

Toronto-Sudbury Branch.—From William Creek to Coldwater, Ont., thirteen miles or over. The Toronto Construction Company were the contractors. From one hundred to three hundred men had been employed, who were housed and boarded in tents, board shacks and cars, by the contractors. There had been no contagious or infectious diseases, two serious and some minor accidents, and one death by dynamite explosion. The general health of the men, the water supply and the general sanitary conditions of the camps, were excellent.

The general hospital at Toronto was used when necessary.

J. A. Harvie, M.D., of Coldwater, Ont., was the district medical officer. This work is now completed.

Toronto-Sudbury Branch.—From Bolton to William Creek, Ont., about fifty miles. From two hundred to three hundred men had been employed, who were first housed and boarded in tents or shacks, and afterwards in railroad cars, by the con-

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tractors. The health of the men had been excellent, with no serious accidents or deaths. The water supply was from wells, and the sanitary conditions splendid.

A temporary hospital was provided, and the Barrie and Toronto hospitals were used when necessary.

A. F. Reynar, M.D., of Palgrave, Ont., was the district medical officer in charge. This work is now completed.

Toronto-Sudbury Branch.—From Tottenham, Ont., north about fifteen miles. The Toronto Construction Company were the contractors.

About one hundred men had been employed, who were housed in tents and cars, and boarded by the contractors. There had been no contagious disease, accidents or deaths, and the general health of the men and the sanitary conditions had been good.

Hospital accommodation was provided and W. H. Wright, M.D., Tottenham, Ont., was the district medical officer.

Toronto-Sudbury Branch.—From Tottenham, Ont., south about fifteen miles. The Toronto Construction Company were the contractors.

About one hundred men had been employed on this section, housed in tents or cars, and boarded by the contractors.

There had been no contagious diseases, accidents or deaths, and the general health of the men had been excellent.

Hospital accommodation was provided if necessary.

James Campbell, M.D., of Tottenham, was the district medical officer in charge. This and the work last reported above are now completed.

Toronto-Sudbury Branch.—From Parry Sound south about twenty miles. The Toronto Construction Company were the contractors.

One to two hundred men had been employed, who were housed and boarded in tents, shacks, and cars and boarded by the contractors. There had been no contagious disease, serious accidents, or deaths, and the general health of the men and conditions of the camps were good. Dr. Stone, of Parry Sound, was the district medical officer in charge, and he has a private hospital there for general accommodation.

This work is about completed.

Toronto-Sudbury Branch.—Parry Sound to Byng Inlet, Ont., forty miles. The Ross-Harris Company, Limited, of Parry Sound, are the contractors. About eight hundred and fifty men are employed, who are housed in good log and board buildings, and boarded by the contractors.

Of contagious and infectious diseases, there had been one case of diphtheria, and four of typhoid fever.

There were six accidents, and two deaths from dynamite explosion.

The general health of the men had been good. The water supply obtainable was poor, even from wells.

Latrines were supplied, and the sanitary conditions of the camps were good.

There was an excellent permanent hospital established in a central locality, under charge of J. P. Russell, M.D., who was the district officer of the work.

Walkerton-Lucknow Branch.—From a point on the Canadian Pacific Railway, near Picton, Ont., westerly to the town of Walkerton, Ont., a distance of thirty-seven and one-half miles, Messrs. Macdonald & Stephen, of Durham, Ont., are the contractors. They had not established any permanent camps at the time of my visit, but expected to employ three to four hundred men and had appointed Drs. Jamieson and McLaurin, of Durham, as district medical officers.

MICHIGAN CENTRAL RAILWAY.

Canada Southern Division.—Double tracking between Windsor and Bridgeburg, Ont., and crushing of stone therefor at Hagerville, Ont., for ballast.

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This work is being done by the company under the supervision of Mr. A. S. Zinn, construction engineer, with headquarters at St. Thomas, Ont.

About six hundred men were employed, who were housed and boarded in box cars along the construction work, and in houses and cars at the quarry.

There had been no contagious or infectious diseases, and no deaths, with about fifteen accidents, but none fatal. The general health of the men, and the sanitary conditions were good, the cars used being thoroughly disinfected at times. The hospitals which were most convenient were used, they being the Amasa Ward hospital, at St. Thomas, the Hotel Dieu at Windsor, and the Niagara Falls General Hospital, at Niagara Falls. The men are under the medical charge of the company's railroad hospital association, and no charge is made on them, under the Public Works Health Act regulations. The men are working in gangs at different points along the line, and wherever located the hospital association physician has been appointed district medical officer.

The districts and the medical officers thereof are as follows: Tilbury, Ont., M. Sharp, M.D.; Fletcher, Ont., S. N. Young, M.D.; Blenheim, Ont., S. G. Story, M.D.; Tilsonburg, Ont., W. H. Burnett, M.D.; Delhi, Ont., F. J. Sheahan, M.D.; Hagerville, Ont., S. H. Quance, M.D.; Cayuga, Ont., E. T. Snider, M.D.; Courtright, Ont., J. I. Ferguson, M.D.

THE NIAGARA, ST. CATHARINES AND TORONTO RAILWAY.

Thorold to Welland Branch.—Twelve miles. This is an electric road, and is under contract to Mr. Joseph Battle, of Thorold, Ont.

From seventy-five to one hundred and fifty men were employed, who were located in private houses in the neighbourhood, but notwithstanding were under the charge of W. G. Ratcliffe, M.D., as district medical officer.

JAMES BAY RAILWAY.

Branch into Sudbury.—From north of Canadian Pacific railway crossing to Hutton and branch into Sudbury, the Northern Construction Company, with headquarters at Wahnipitae, Ont, have the contract for this work, and there were ten sub-contractors.

About eight hundred men were employed thereon, who were housed in tents and lumber buildings, and boarded by the contractors or sub-contractors.

There had been about sixty cases of typhoid fever, with ten deaths, nine from typhoid and one from explosion.

There were some accidents, but only five serious.

The health of the men had been generally good, and the water supply fair, but there had not been sufficient care given to the sanitary conditions of the camps.

There is good accommodation at the Sudbury hospital, which was used in addition to the temporary hospital. The medical supervision of the men on this work was under the charge of R. B. Struthers, M.D., who was the district medical officer, and who was assisted by his partner, Dr. Arthur.

Section from French River North to Canadian Pacific Railway Crossing.—The Northern Construction Company are the contractors. About nine to ten hundred men were employed, who were housed and boarded in tents, shacks and wooden buildings, by the contractors. There had been a number of cases of typhoid fever, and one of diphtheria, but no deaths, and no very serious accidents. The general health of the men had been good, the water supply fair, and the condition of the camps fairly good. A permanent hospital is maintained in a suitable location for the various camps, under charge of a resident medical officer, and the supervision of C. H. Gilmour, M.D., who is the chief medical officer for the contractors.

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Section from French River South.—Thirty miles, Angus Sinclair, C.E., of Parry Sound, is the contractor, and there are four or five sub-contractors. About four hundred men were employed, who were housed and boarded in tents, shacks, and log buildings, by the contractor and sub-contractors.

There had only been one case of contagious disease (erysipelas), but none serious, and no deaths. There was a permanent hospital established, central to the camps, which was in charge of Geo. H. Gardiner, M.D., who is the district medical officer of the work, under C. H. Gilmour, M.D., the chief medical officer for the contractor.

Section from North of Parry Sound.—Thirty miles. Angus Sinclair, C.E., is the contractor, and there are ten sub-contractors. About eight hundred men were employed who were housed in tents, shacks and log cabins, and boarded by the sub-contractors. There were some cases of typhoid, but no other contagious or infectious diseases. There were three serious accidents, and a number of minor ones. There were eight deaths from explosions, &c., but none in the hospital. The general health of the men, the water supply and the sanitary conditions of the camps were good. There was one permanent hospital 30 by 52 feet, suitably located and under charge of W. A. Robertson, M.D., as district medical officer, under the supervision of C. H. Gilmour, M.D., the chief medical officer for the contractor.

CENTRAL ONTARIO RAILWAY.

Bancroft to Mayworth, Ont.—About fifteen miles. W. G. Gibson, of Port Hope, Ont., is the chief contractor, and the company are doing a small portion of the work themselves. About one hundred and fifty men were employed thereon, who were housed in shacks or wood buildings erected by the company along the line, or in farm houses and boarded by James Robinson on contract. The health of the men had been good, and no contagious or infectious diseases developed. There had been no deaths and only one serious accident, from which patient recovered. Tents and houses were provided for temporary accommodation, and the Belleville general hospital was used in the case of the accident named. The water supply was from springs, and was very good. Latrines were provided in suitable locations and the general sanitary conditions of the camps were good.

A. T. Embury, M.D., of Bancroft, is the district medical officer of this work.

NAPIERVILLE JUNCTION RAILWAY.

Rouse's Point, N.Y., to St. Constant, Que.—Twenty-seven miles. This work is being carried on by the Delaware & Hudson Railway Company, of New York, from the international boundary line, and the Pacific Construction Company of Ottawa are the chief contractors, with Messrs. Rogers & Quirk, and Messrs. Arthur H. R. & Robert F. H. Bruce, as subcontractors.

Only a small body of men were employed, most of whom reside in the neighbourhood, or board with farmers. The health of the men had been good, and there had been no serious accidents or deaths. No fee is charged the men for medical services. In case of necessity, the Montreal General Hospital, or the general hospital at Plattsburg, N.Y., would be used.

QUEBEC CENTRAL RAILWAY.

Extension in the County of Beauce.—From Beauceville to St. George, Que., nine miles. Clarke Gordon, of Sherbrooke, was the contractor. About three hundred men were employed thereon, who lodged and boarded in the surrounding vicinity. No charge was made on them for medical services. Their health had been excellent, and no hospital had been required, but the Quebec General Hospital would be used in case of necessity. This work is now completed.

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QUEBEC RAILWAY, LIGHT AND POWER COMPANY.

Concrete Dam.—Across the River Montmorency, county of Quebec. There were two hundred and fifty men employed on the work, but they all reside in their own houses, or board with surrounding residents. Their health had been excellent, and no medical fee was being charged them.

GREAT NORTHERN RAILWAY.

Montford Branch.—From junction with main line near St. Jérôme, Que., to junction with the Montfort and Gatineau railway, about sixteen miles. This work is being carried on by Messrs. Mackenzie, Mann & Co., of Toronto, who have sub-let the same to Messrs. O'Brien & Mullarky, of Montreal, and they have again sublet it in four divisions, to the following contractors, T. Kert, Morrison, Bonneville and Mulhern, and McDonald & Sunstrum. There are four camps, and three hundred and forty men were employed, who were housed and boarded in tents and wood shacks, by the sub-contractors. There had been two cases of typhoid fever, one serious accident, and two deaths. The general health of the men, the water supply, and the general sanitary conditions of the camps were good. Temporary tents were provided for hospital use, and a Montreal hospital would be used in case of necessity.

D. Berthiaume, M.D., of St. Jérôme, Que., is the district medical officer of the work.

Extension of Main Line.—From near Shawinigan to Quebec city, about eighty-six miles. This work is also being carried on by Messrs. Mackenzie, Mann & Co., of Toronto, who have contracted with Messrs. O'Brien & Mullarky, of Montreal, for the construction thereof, and the latter have sublet parts thereof to four sub-contractors, viz.: Bamfield, McManus, Sorret & S. Maloney. There are four camps, one at St. Casimir, one at St. Orme, one at St. Prospère, and one at St. Stanislas, in the county of Champlain. About three hundred men were employed in all, about one hundred and twenty-five of them being housed and boarded in tents and buildings by the sub-contractors, the remainder boarding with surrounding farmers. There had been no contagious or infectious disease, no deaths, and only one accident. The general health of the men, the water supply, and the sanitary conditions were good. Hospital quarters were provided in case of urgency, but one of the Montreal hospitals would be used in case of necessity. Rosario Frigon, M.D., of St. Casimir, was the district medical officer of the first three camps, and Ferdinand Trudel, M.D., of St. Stanislas, the district medical officer of the camp there.

QUEBEC AND LAKE ST. JOHN RAILWAY.

La Tuque Branch.—From La Tuque Junction to La Tuque village, about forty-two miles. This work has been under construction for some time, and is under contract to Mr. Joseph Paquette. There are only about one hundred and twenty men employed at the present, but there had previously been a much larger number. They were housed in good permanent buildings, or scattered along the line in tents, and were well boarded by the contractor. The general health of the men had been excellent, the water supply of the very best, and the sanitary conditions of the camps good.

There had been no contagious or infectious disease, no deaths, and only five or six minor accidents. Latrines were supplied at the permanent camps. The contractor had erected a good permanent building at La Tuque junction for hospital accommodation, which was under the charge of Louis V. Masse, M.D., who resided thereat, and he was the district medical officer of the work.

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HALIFAX AND SOUTHWESTERN RAILWAY.

Section from Liverpool to Barrington.—About seventy-nine miles. The proprietorship of this road is in the hands of Messrs. Mackenzie, Mann & Co., of Toronto. The contractors for the construction thereof, were the Atlantic Construction Company, with headquarters at Shelburne, N.S., and they let out the work to several sub-contractors.

From two to three hundred men had been employed, but at the date of my last inspection, that part of the road from Liverpool to Shelburne, had been completed and trains were operated thereon, and from Shelburne to Barrington, twenty-five miles, only about one hundred and fifty men were employed, mostly at track-laying and bridge work. The health of the men employed along the entire line during the past year, had been exceptionally good, they being well housed and boarded by the sub-contractors. There had been no contagious or infectious diseases, or deaths, but there were a number of minor accidents, and one serious, but the patient recovered. The Royal Victoria Hospital at Halifax was used when necessary, but temporary hospital accommodation was provided by the contractors, at suitable locations. The district medical officers supervising the health and care of the men during the past season were G. W. Burns, M.D., and Jas. Morton, M.D., of Shelburne, and J. D. Dunsmure, M.D., of Port Clyde, N.S. At the date of making this report, the above road is completed, and trains are running thereon from Halifax to Yarmouth, N.S.

CANADIAN NORTHERN RAILWAY.

Ridgeville to Vassar, Manitoba, about twenty-five miles. This work is east of Winnipeg, and is being carried on by Messrs. Mackenzie, Mann & Co., contractors. Only a small body of men were employed thereon, who were well housed and cared for by the contractors, and their general health had been excellent. P. C. Crosby, M.D., was the district medical officer in charge.

In closing this, my report for the seventeen months ended March 31, 1907, I have the pleasure of again being able to draw your attention to the abatement of contagious and infectious diseases (with the exception of typhoid fever in the neighbourhood of Fort William, Ont.), the general healthfulness of the men, the excellent sanitary condition of the camps at said works, and the attention given by the companies, contractors, sub-contractors, and medical officers in trying to comply with the requirements of the regulations under the Public Works Health Act, 1899.

I have the honour to be, sir,

Your obedient servant,

CHAS. A. L. FISHER,
Public Works (Health) Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 14.

(T. F. CHAMBERLAIN, M.D.)

TORONTO, April 1, 1907.

SIR,—I have the honour to submit to you my report as public works (health) inspector for the year ended March 31, 1907. Early in the month of June last I was

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appointed an inspector under the Dominion Health Act of March 3, 1906, and instructed by you to inspect all places where public works were being conducted in the provinces of Manitoba, Saskatchewan, Alberta and British Columbia, for the purpose of ascertaining if the men employed thereon were receiving the medical and surgical attention which they are entitled to receive under the provisions of the Act in consideration of the amount they contribute monthly for that purpose. Having obtained all the information possible from the officials of the railways at Montreal as to the different places where work was being done and the number of men employed, I left for Winnipeg on June 21. On my arrival I interviewed the railway officials cognizant of the facts I wished to obtain, and received from them the information I required to enable me to commence my work.

The work on the following lines of railway, viz.: the Canadian Pacific Railway, Canadian Northern Railway, Grand Trunk Pacific Railway, Kettle River (or Hot Air Line), Great Northern, and Brandon, Saskatchewan and Hudson Bay Railway, consisted mostly of grading and bridge building with some track laying during the fall until the cold weather caused them to go into winter quarters the last of November.

In order to reach the different men and camps on the different lines of railway, I had to drive hundreds of miles, often where there were no roads, also walking considerable distances. In my reports to you from time to time I gave all the details I could obtain from doctors, contractors and others, a resumé of which I append herewith.

Twice during the season I visited and inspected most of the camps in Manitoba, Saskatchewan and Alberta and once in British Columbia. The conditions of location sanitation, water supply, &c., were very good in a few of the camps, the men employed being satisfied in every respect. The greater number of camps in no way (except as regards food) met the requirements of the Health Act. In many places the alkaline condition of the water is a great inconvenience to both men and horses, and was in some cases a cause of sickness. The absence of proper appliances for boiling and filtering the water, proper latrines and hospitals, tents, &c., of the camps no doubt contributed to much of the sickness, especially typhoid fever. These cases were removed long distances in the wagons to some town where there is a hospital where they could be cared for and receive proper medical attention. The men found much fault at not receiving the medical treatment they felt they were entitled to.

The best, most complete and largest camp I inspected was found in the Qu'Appelle River Valley, where the Doukhobors had a sub-contract from Messrs. McDonald & McMillan. At several points the Grand Trunk Pacific Railway, Canadian Pacific Railway and Canadian Northern Railway parallel each other and are quite close to each other, which enabled me to visit the camps on the three roads by cross-cutting the country from one to the other. It was very difficult for contractors to obtain the number of men they require, although good wages were paid; \$2 per day to labourers without board, and \$30 to \$35 per month with board.

Owing to the neglect of the doctors in not sending me the monthly reports, as well as the questions in the reports, I have received, not being fully answered, it is impossible for me to give even an approximate statement of the number of cases of sickness, injuries or deaths. I gave the doctors, contractors and engineers copies of the Health Act, circulars and letters, instructing them as to sanitary and other matters from time to time as I visited the camps, also blank forms to the doctors to be filled in and sent to me at the end of each month. It is quite evident that the medical work required by the Health Act is entirely handed over by the contractors to the chief medical officer of the railway company from whom the contract is taken.

The following schedule contains the facts given in the doctors reports in full and are all that I received during the year.

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Doctor.	General Sanitary Condition.	Latrines.	Water Supply.
Dr. J. M. Brandon, Dubuc.....	Good	Eight pits.....	Well water.....
G. S. Wray, Saskatoon.....	Good	At each camp.....	"
W. C. Arnold, Touchwood.....	Fair.....	None.....	"
S. McCallum, Vermilion.....	Good	None.....	Well.....
W. A. Cluff, Strassburg.....	Good	Where practicable..	Surface wells....
W. S. Syall, Carberry.....	Very good..	Pit closets.....	Spring.....
G. N. Giles, Miniota.....	Good.....	In large camps.....	Well and spring....
Geo. Camsell, Austin.....	Good.....	Have special.....	Running streams...
C. E. Flatt.....	Fair to good..	Sufficient.....	Well and spring....
A. J. Dickson, Rapid City.....	Good.....	Holes in ground....	Wells.....
A. W. Allum, Rapid City.....	Good.....	Cesspools.....	"
J. G. Middlemiss, Battleford.....	Good.....	4.....	Spring and well....
J. Gray, Portage la Prairie.....	Excellent....	Pit closet.....	Well.....
J. Gray, Portage la Prairie.....	Excellent....	Dry earth closet...	Wells.....
J. Gray, Portage la Prairie.....	Excellent	Good.....	Well.....
G. R. Peterson, Saskatoon.....	Good.....	2 Good.....	Good.....
Arthur W. Hotham, Strassburg.....	Good.....	O. K.....	"
W. E. Somers, Sheho.....	O. K.....	O. K.....	"
W. E. Somers, Sheho.....	Good.....		Wells.....

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Hospitals.	General. Health.	Deaths	Accidents.	Contagious Diseases.	Men paid per month.	Number of men employed.	Date of Report.	Railway.
					\$ cts.			
1	Good		2			100	August 31.....	G. T. P. R.
Tent.....	"	1	No serious.			300	"	"
None.....	"					350	"	"
1	"					95	"	"
None.....	"		No serious.			225	"	"
None.....	"		1	2 Measles.		300	"	"
Field.....	"		Fractures .	Measles and		260	"	"
None.....	"			Scabies.....		200	"	"
1	"					250	"	"
None.....	"					320	"	"
None.....	"	1				106	"	"
2	"	2				275	"	"
1 Tent.....	"		13			130	"	"
1 Tent.....	"		13		0 75	135	"	"
None.....	"	1	4	4		180	Sept. 30.....	"
2	"		2			212	Aug. 30.....	"
None.....	"				1 00	125	July 31.....	C. P. R.
Tent.....	"		1		0 50	100	June 30.....	"
None.....	"				0 50	110	Sept. 30.....	"

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SYNOPSIS FROM REPORTS.

EDMONTON, July 25, 1906.

I have inspected most of the camps on the Grand Trunk Pacific railway from Winnipeg here and will leave to-morrow for British Columbia to finish the work there. The contractors for the Grand Trunk Pacific are Messrs. McDonald & McMillan, who have a contract of 250 miles from Winnipeg to Touchwood Hills. The Canadian White Company have the contract from there to Saskatoon, and Foley Bros. from there to this place. These contractors do some portions of the work themselves and sublet to various other parties. The whole comprises about 825 miles. None of the companies having camps meet the requirements of the Public Works Health Act of March 3, 1906. There are a few camps which are clean and have very good sanitary provisions and are supplied with latrines. The camp refuse is either buried or burned. But very few of the camps have hospital tents or local doctors in charge.

The water is obtained chiefly from wells and in many places is alkaline. The food is supplied to the men and is well cooked. About 2,500 men are employed between Winnipeg and this point. There is one camp of about 600 Doukhobors employed by McDonald & McMillan. They furnish their own supplies, and do not contribute anything for medical attendance. Their women accompany them and attend to the cooking in the camp, &c. Their camps are neat and clean and in good sanitary condition. They work under the instructions of a foreman and engineer. The Grand Trunk Pacific have a good camp near Portage la Prairie, and also one east of Saskatoon, Messrs. Armstrong & Lake, sub-contractors. They are kept in good sanitary condition. In other camps very little attention is paid to sanitary conditions, and the men find considerable fault as to the medical attendance they receive. No resident doctors except at a camp east of Battleford, where Dr. Middlemiss has a tent and medical supplies, and west of Battleford, at Vermilion, in charge of Dr. McCallum. The other doctors employed along the line reside in towns or villages and have a private practice to attend to. They visit the sick in the camps when sent for. In many cases covering a distance of 40 or 50 miles from their places of residence. They receive \$40 to \$100 per month, and the men pay 75 cents per month each for their attendance. In most cases the doctors employed pay little or no attention to the sanitary conditions of the camps. They do as little work as they possibly can for the money they receive. The contractors and sub-contractors house their men in tents and in most cases board them. Day labourers are paid \$2 a day and charged from \$4 to \$4.50 a week for board. Men employed by the month are paid from \$30 to \$35 per month and their board. I am told that there has not been much sickness and very few accidents have occurred up to the present time. Some cases of smallpox developed near Miniota a few weeks ago, but did not spread, the parties being properly quarantined.

I have left copies of the Health Act with the doctors, contractors, foremen and engineers at each camp, with the request that they carefully carry out the conditions contained therein. South of Battleford there are several camps on the construction of the Grand Trunk Pacific and Canadian Pacific railway, and Dr. Middlemiss is in charge of the sick on the Grand Trunk Pacific works. He has a hospital tent and is provided with medicines. The Grand Trunk Pacific Company are making an effort to comply with the Public Health Act and the men are charged 75 cents per month for medical attendance.

I inspected the camps on the Canadian Pacific railway along the line from Sheho to Wetaskiwin. A few of them are in a sanitary condition. In some cases the water was very bad, and up to the present time no doctors have visited some of the camps. In other places the doctors visit the camps once a week or oftener if sent for. There are no latrines, no hospital tents, and no medical supplies. The men are charged from 75 cents to \$1 per month and are housed in tents and boarded by the contractors. J. D. McArthur is the contractor for the work west of Sheho, a large portion of which

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he sublets. Dr. Somers, of Shebo, attends to the men when he is required. The extension from Strassburg west is let to the British Columbia General Contract Company, who sublet to different parties. The men are charged \$1 per month for medical attendance. The camps are not supplied with hospitals or other appliances for the sick except in one or two places. The doctor generally visits the men once a week or two. Other camps are in a fairly good condition. The Canadian Pacific railway line west from Saskatoon to Wetaskiwin is being built by the McArthur Company, who have the contract. They sublet a good portion of the grading. They supply all their sub-contractors with supplies and food for the men. The men are housed and fed by the contractors. No hospital tents or resident doctors at many of the camps, and the sanitary condition is not good. At other places the camps are situated on high ground and the refuse is destroyed. The food is good and well cooked. Men are charged 75 cents per month. Dr. McDonald is located in a tent on the works south of Battleford. The road is built from Wetaskiwin to Daysland, a distance of 51 miles, and the grading some 30 or 40 miles farther east. There is no work going on east of Lacombe at present.

I also inspected the Brandon, Saskatchewan and Hudson Bay's construction works, which cross the boundary line south of Brandon, and are being completed to that place. The general contractors are Guthrie & Co., of St. Paul. The principal sub-contractor is Mr. Bradley. Well water is used for all purposes at the camp and is very good. The food supplied the men is good and well cooked. They are charged 50 cents a month for medical attendance. They are housed in tents and fed by the contractors. Sanitary conditions of the camps are not very good. Some 300 men are employed. I found a case of smallpox on the works near Souris. The patient was quarantined and the exposed parties I had vaccinated. No other cases occurred at those camps. I left copies of the Health Act with the doctors, contractors and engineer.

I inspected the camps on the Canadian Northern railway, running west from Oakland, near Lake Manitoba, to intersect their main line, running to Prince Albert. James Cowan, the contractor, sublets to other parties. Mr. J. E. Atkinson is the engineer on the work. There is no doctor or hospital tent or latrine at the camp along this line. The men are housed in tents by the contractors who board them, charging 75 cents per month for medical attendance. I am told that there has not been much sickness or injuries to the present time.

I am, sir,

Your obedient servant,

(Signed) T. F. CHAMBERLAIN, M.D.

F. MONTIZAMBERT, Esq., M.D.,

Director General of Public Health,
Ottawa, Ont.

GRAND FORKS, B.C., August 9, 1906.

SIR,—I beg to report to you that I have found the conditions of the different works in this province, as to the health of the men and the provisions made for their attendance in case of sickness or injury, very much the same as the works I visited in the eastern provinces already reported to you. The Health Act of March, 1906, is not carried out, but on some of the works the contractors are making an effort to meet some of the requirements of the Act.

Canadian Pacific Railway Work.—The work on the Nicola branch from Spence's bridge is nearly completed. Mr. McDonald is the contractor. He has only a few men employed at the present time.

The Kettle River Valley Railway Company.—The contractor for 50 miles of this road is Mr. W. F. Tierney. The chief engineer and general superintendent is H. W.

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Warrington. Some 475 men are employed on this work between this place and Ban-
nock City, a distance of 16 miles. I find the supply of water better in this province
than in the east. It is obtained from springs coming from the mountains. The con-
tractor, Mr. Tierney, has made better provision for medical attendance and for the
sanitary condition of the camps operated by himself than any of the other camps I
have visited. Dr. W. H. Dixon, of this place, has charge of the medical work. The
men are charged \$1 per month each for medical attendance.

Great Northern Railway.—They are working from Midway west to a place called
Oroville, about 30 miles, the rails are laid for some 12 miles. About 300 men are now
employed. Their object is to complete laying rails to Oroville, so as to carry in sup-
plies by construction train. J. W. Stewart, or practically Foley Bros., are the contrac-
tors. They have the contract from the boundary line to Keremos, about 65 miles. J.
H. Kennedy is the engineer. This road is making for Vancouver. There is also some
work being done from Vancouver east.

I find the work very difficult in this province, on account of the great distance and
the difficulty of getting in to where the work is being done, train service being limited.

I am, sir,

Your obedient servant,

F. MONTIZAMBERT, Esq., M.D.,
Director General of Public Health,
Ottawa, Canada.

WINNIPEG, August 18, 1906.

SIR,—I beg to report that there are some 350 men on construction work for the
Canadian Pacific Railway between Medicine Hat and Swift Current. The chief en-
gineer is Mr. J. D. McArthur. He sublets to Alberta Construction Company, Cazair
& Janes Bros.

The same conditions as to the Health Act exist as in the case of other works al-
ready reported.

The Canadian Pacific Railway are doing some work themselves at the summit of
Crow's Nest Pass, but few men are employed.

I have the honour to be, sir,

Your obedient servant,

F. MONTIZAMBERT, Esq., M.D.,
Director General of Public Health,
Ottawa, Canada.

WINNIPEG, October 20, 1906.

SIR,—I beg to report to you that I have made the second inspection of the camps
on the following railways, namely: the Grand Trunk Pacific, from Portage la Prairie
to Bagot, 15 miles west, with 175 men at the camps. Dr. Gray attends the men and
resides at the camps. The men are fed and housed in cars fitted for that purpose.
Water and food are good. Thirty cases of slight injury, four cases of typhoid fever,
one death. The men are charged 75 cents per month. The doctor is paid \$75 a
month and board. The sick are sent to Portage hospital for treatment.

The work east and west of Battleford is being pushed as rapidly as possible by the
company. Foley Bros. have the contract between Saskatoon and Edmonton. They

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sublet to various other parties. The men sleep and eat in tents furnished by the contractors. Drs. Hickson and Ray are located on the works and go up and down the line. The sick are sent to Battleford hospital in wagons, some 50 miles, for treatment. At the hospital in Battleford, Dr. McLurge attends the sick and receives \$50 a month from the company. Within the past two months 14 cases of typhoid fever and one case of pneumonia have been sent into the hospital for treatment. There were four deaths. The water is said to be good, also the food. The men complain of the medical attendance. The Dominion Health Act is not complied with.

The Canadian Northern Railway.—I went over the road from Oakland, near Lake Manitoba, to the landing. This is a line some 90 miles, to connect with a main line to Prince Albert, at a place called Meckanek. The rails are laid for 16 miles. Messrs. Cowan & Company, of Winnipeg, are the contractors for grading 44 miles. Dr. McKinnon, of Portage, attends to the medical work along the line. One hundred men are in camp, housed and fed in tents by the contractors. There are no hospitals, or latrines. West of Edmonton for some 25 miles the grading is nearing completion, the rails being laid for 6 miles. Mr. McArthur, of Winnipeg, has the contract. He sublets to other parties who have small camps along the line of from 30 to 40 men. They are housed in tents and fed by the contractors. Dr. Oatwa, of Spruce Grove, looks after the sick and injured over this line. He is employed by Dr. McKenzie, of Winnipeg. The men are charged 75 cents per month for attendance. Mr. McCrimmon, of Winnipeg, has ten miles of grading on this line. He feeds and houses his men in tents. The sleeping tents are supplied with stoves. There has not been much sickness along this line during the fall or summer. One case of typhoid fever is reported. The water and food are good. The sick are sent to Edmonton hospital for treatment.

The Canadian Pacific Railway.—I visited most of the camps between Swift Current and Medicine Hat. Mr. McArthur, of Winnipeg, has the contract for grading. He sublets to other parties. The men are fed and housed by the contractors in tents. Well water principally is used. The food is good and well cooked. Dr. Smith, of Maple Creek, attends to the sick and goes over the line once a week. There was a small camp at Forest and just west of that Mr. Cummings, the sub-contractor, has a camp of 45 men. Cazair Bros. have a large camp still west of Cummings, near Walsh station. The men pay 75 cents a month for medical attendance. Dr. Smith is not very regular in his attendance upon the sick. There have been 14 cases of typhoid fever. Eight cases are now at Maple Creek hospital. There have been two deaths. Well water is used. There are no hospitals or latrines. Their line running to Battle River, some 50 miles east of Daysland, is graded. The men are housed and fed by the company. There was no sickness during the past few weeks, and no doctor employed on the line. The sick, when any, are sent to Wetaskiwin for treatment. The road is being pushed rapidly from Saskatoon west to meet the line from Wetaskiwin at Battle River. This road runs for a number of miles parallel with the Grand Trunk Pacific some 50 miles south of Battleford. Dr. McDonald is located on the works and sends the sick into Battleford hospital for treatment.

The doctor's camp is near Tramping lake. At the hospital the patients are attended by Dr. McLurge, of Battleford. Mr. McArthur, of Winnipeg, has the contract for this work from Saskatoon to Daysland. It is sublet in small sections. The water and food are good, but there are no hospitals or latrines. There have been three cases of typhoid fever sent into the hospital during the past few months. The men at the works complain of the medical attendance. No deaths are reported. I have left in the various camps and sent to the doctors copies of the inclosed notice.

‘Contractors, sub-contractors, doctors and engineers employed on public works, will, during the next two months take special precautions at all the camps in order to prevent epidemics of typhoid fever.

‘All water used for drinking or culinary purposes, not obtained from springs or good wells, must be boiled, and, if necessary, filtered before using, as provided for by the Dominion Health Act of March 3, 1906.

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‘Any neglect in this respect will subject the above parties to a fine of \$100 or three months’ imprisonment, or both.’

I have the honour to be, sir,

Your obedient servant,

T. F. CHAMBERLAIN, M.D.,

F. MONTIZAMBERT, Esq., M.D.,

Director General of Public Health,
Ottawa, Canada.

NOVEMBER 26, 1906.

SIR,—*Canadian Pacific Railway*.—I beg to report that the work from Sheho west to connect with the work east from Wetaskiwin by way of Saskatoon to Battle River, where it connects with the eastern works, has made good progress since my last inspection. Mr. J. D. McArthur is the contractor, who sublets to other parties. Mr. D. A. Findley is one of the principal sub-contractors and has 40 miles west of Sheho. Dr. Somers, of Sheho, looks after the medical work. He receives 50 cents per month for every man on the work. The men are charged 75 cents per month. At present there are three camps and 120 men. There have been a few cases of minor accidents and no typhoid. Water and food are good. There are no latrines. Men are fed and housed in tents. The doctor said he had a hospital tent for part of the season. The sick are generally brought into Sheho and kept in the hotel, the contractor paying the bills. The doctor goes to the camp once a week, oftener if sent for. The contractor told me that he would close down the works in a few days for the winter. Mr. Reid is engineer on the works. West of Saskatoon to the Eagle Hills there are five camps. The heaviest work on the line of grading is through those hills. Mr. McArthur, contractor for this company, has undertaken with Foley Bros., contractors for the Grand Trunk Pacific railway, to make a cut of three miles through those hills, where the two roads will run side by side. There are about 400 men in those camps. Dr. McDonald looks after the health of the men and resides at Camp No. 5. He goes 50 miles in each direction and has a hospital tent during the season at the supply store, 58 miles from Battleford. The sick were mostly taken to Battleford for treatment. Men are charged 75 cents per month. Both food and water are good. One case of typhoid is reported. The doctor visited the camps once in 15 days or longer intervals. He is paid by the month and furnished with horses. Early next season this road will be completed from Sheho to Wetaskiwin, which will give the Canadian Pacific railway direct line to Edmonton.

Great Northern Railway.—This road is building north from a place called Etinami, on their main line to Prince Albert towards Hudson bay. Some 200 men are employed on grading and track-laying. There are three camps. One has closed down for the winter and the others will stop work this month. There are 16 miles of track laid and 60 miles graded. The Cowan Company, of Winnipeg, are the contractors. G. B. Bemister is engineer. Dr. Wimot attends the men. He has a tent on the works with seven beds for part of the season. There has not been much sickness. The food and water are good. The men are fed and housed in tents by the contractors. The men are charged 75 cents per month.

Grand Trunk Pacific.—Foley Bros. are contractors from Saskatoon to Edmonton, and sublet to various other parties. Mr. J. D. McArthur, contractor for the Canadian Pacific railway, is doing three miles of cutting for Foley Bros., where the two lines run close together through the Eagle Hills. There are five camps west of Saskatoon. Dr. Ray attends the sick, stationed at camp 5, with a hospital tent. Both food and water is said to be good. There are no latrines in use. Men are charged 75 cents a month. Dr. Ray goes over the camps once a week. Dr. Patterson, of Saskatoon, as-

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sists him. East of Saskatoon and two miles west the White Company are the contractors. Their contract extends east to McDonald & McMillan's.

On account of the severe frost and storm, the companies have been compelled to close down for the winter. The works are expected to commence again early in the spring.

In conclusion, I wish to acknowledge the kindness of the different railway companies and their officials, in placing at my disposal conveniences which enabled me to carry on the work of inspection along their lines.

I have the honour to be, sir,

Your obedient servant,

T. F. CHAMBERLAIN, M.D.

The Honourable

The Minister of Agriculture,
Ottawa, Canada.

MISCELLANEOUS

No. 15.

QUARANTINE REGULATIONS.

INTERPRETATION.

Sec. 1. In these Regulations, unless the context otherwise requires :—

(a) The expression 'the Minister' means the Minister of Agriculture ;

(b) The expression 'inspection' means an inspection made by a duly authorized veterinary Inspector of the Department of Agriculture ;

(c) The expression 'contagious' means communicable by close contact or inoculation ;

(d) The expression 'infectious' means communicable in any manner ;

(e) The expression 'infectious or contagious disease' includes, in addition to other diseases generally so designated, glanders, farcy, maladie du coït, pleuro-pneumonia contagiosa, foot and mouth disease, rinderpest, anthrax, Texas fever, hog cholera, swine plague, mange, scab, rabies, tuberculosis, actinomycosis and variola cvina.

Sec. 2. The Veterinary Director-General is in charge of Health of Animals Branch of the Department of Agriculture.

Sec. 3. The following customs ports are hereby declared to be Animals Quarantine Stations and all animals imported into Canada subject to quarantine must be entered through said stations, viz.:—Halifax, N.S., St. John, N.B., Charlottetown, P.E.I., Quebec, Sherbrooke and St. Johns, Que., Bridgeburg, Windsor and Sarnia, Ont., Emerson, Gretna and Bannerman, Man., North Portal, Wood Mountain and Willow Creek, Sask., Pendant d'Oreille, Coutts, and Twin Lakes, Alta., Gateway, Kingsgate, Rossland, Nelson, Grand Forks, Midway, Myncaster, Vancouver and Victoria, B.C.

Sec. 4. Animals subject to inspection only, but which are not subject to quarantine, may enter through the aforesaid and at the following ports:—Pictou, North Sydney and Yarmouth, N.S., St. Stephens, Woodstock and McAdam Junction, N.B., Comin's Mills, Lake Megantic, Coaticook, Stanstead Junction, Mansonville, Abercorn, St. Armand, Rouse's Point, Athelstan and Dundee, Que., Cornwall, Prescott, Brockville, Cobourg, Toronto, Niagara Falls, Sault Ste. Marie, Port Arthur, Rainy River, and Fort Frances, Ont., Osoyoos, Sumas, New Westminster and Douglas, B.C.

Sec. 5. The Minister of Agriculture is hereby empowered to cancel as quarantine and inspection stations any of the places above named and to select such other sites in exchange for or in addition to the above as he may from time to time deem expedient.

IMPORTATIONS IN GENERAL.

Sec. 6. The Minister may prohibit or regulate the importation of animals from any country or any district where he has reason to believe that contagious disease of animals exists.

Sec. 7. (a) Persons contemplating the importation of animals other than horses from any part of the world, except the United States and Newfoundland, must first obtain from the Minister a permit stating the number and kind of animals to be im-

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ported, the country of origin and probable date of shipment, the port of embarkation, the port at which said animals are to be landed and the approximate date of their arrival, and such permit shall not be available at any port other than the one mentioned therein.

(b) Application for such permits shall be in writing and the statements in such applications may be required to be verified on oath and the Minister shall decide in every case, whether a permit will be granted.

(c) Animals from countries other than those above mentioned arriving at any port in Canada without such permit shall not be admitted to Canada unless and until ordered by the Minister.

Sec. 8. The importation into Canada of animals from all countries, other than the United States, Newfoundland and Mexico, is prohibited except at the ports of Victoria, Vancouver, Quebec, Halifax, St. John, N.B., Charlottetown, P.E.I., and such other ports as may hereafter be indicated by the Minister.

Sec. 9. Persons in charge of vessels conveying animals to Canada must, immediately on arrival in port, notify the Superintendent of the Animals Quarantine Station of the arrival of such vessel and the number and kind of animals on board thereof.

Sec. 10. All importers must certify under oath, before making customs entry, the place of origin of the animals imported by them.

Sec. 11. All animals arriving in Canada through any of the above mentioned ports on the Canadian seaboard shall be subject to inspection on arrival by inspectors who may, from time to time, be appointed for that purpose.

Sec. 12. All inspections of imported animals must be made in daylight.

Sec. 13. Inspectors shall have free access to any wharf, vessel, car, or to any place where animals may be found, and, under authority from the Minister, shall deal with animals, vehicles and other articles in the manner contemplated by the Animal Contagious Diseases Act, 1903.

Sec. 14. Inspectors shall visit the vessels or cars conveying animals into the said ports and after inspecting such animals and finding them free from disease, shall superintend their landing or unloading, order them to be placed and disposed of according to the requirements of the case, and see that those to be quarantined are conveyed to the proper quarantine station. Inspectors shall also superintend the landing, unloading and disposal of fodder, litter, blankets, troughs and other articles which may have been used by or for the said animals.

Sec. 15. Importers of animals will be required to certify under oath that the certificates hereinafter referred to apply to the animals which they purport to describe and to no other, and that the district named is the actual one from which the said animals came.

Sec. 16. Any unauthorized interference with animals after inspection, whether by substitution or otherwise, or any other evasion, or misrepresentation, will be deemed a breach of these Regulations and in addition will render the shipment liable to seizure and detention pending the orders of the Minister as to its disposal.

Sec. 17. Inspectors may, if they deem it necessary, order the cleansing and purifying of any vessel, place, vehicle, building or article, and direct such precautionary measures to be taken as they may consider advisable, pending the decision of the Minister as to the ultimate disposal of such vessel, place, vehicle, building or article.

Sec. 18. Any animal affected with any contagious or infectious disease, which is imported or introduced, or attempted to be imported or introduced into Canada, shall be forfeited and may be forthwith destroyed or disposed of as the Minister may direct. And every person who imports or introduces, or attempts to import or introduce into Canada any animal affected with any contagious or infectious disease, shall be deemed guilty of a breach of these Regulations in regard to each and every animal so imported and introduced, or attempted to be imported or introduced by him.

Sec. 19. The importation of head ropes which have been used for tying up cattle is prohibited, and all vessels carrying or having on board such head ropes in contra-

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vention of this Regulation shall be liable to be declared to be infected under 'The Animal Contagious Disease Act, 1903.'

Sec. 20. The importation of the manure of swine is prohibited.

Sec. 21. Any Veterinary Inspector may declare any railway car, or other land or water conveyance bringing animal manures into Canada, an infected place within the meaning of the provisions of the 'Animal Contagious Diseases Act,' whenever he shall have reason to believe or to have well founded suspicion that such may be a source of danger as respects the introduction of disease; and the unloading of such car or other land or water conveyance shall be in consequence prohibited until otherwise ordered in accordance with the provisions of the said Act.

HORSES, MULES AND ASSES.

Sec. 22. Horses, mules and asses imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came that no glanders 'maladie du coït' or other serious infectious or contagious disease affecting horses has existed in said district for a period of six months prior to their shipment.

Sec. 23. Horses, mules and asses imported from countries other than the United States, Newfoundland and Mexico, consigned to Montreal, may be, if the Minister so directs, inspected at the port of Quebec during summer navigation; in absence of special direction of the Minister they must be inspected at the port of Montreal. Such animals landing at any of the other ports named shall be inspected at such ports.

CATTLE.

Sec. 24. Cattle imported from countries other than the United States, Newfoundland and Mexico must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no pleuro-pneumonia contagiosa, rinderpest or foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 25. (a) A quarantine of sixty days shall be enforced upon cattle imported from the United Kingdom. A quarantine of ninety days shall be enforced upon cattle imported from all other countries except the United States, Newfoundland and Mexico.

(b) The period of quarantine enforced upon cattle shall be counted from the date of clearance of the vessel carrying the same.

OTHER RUMINANTS.

Sec. 26. Sheep and goats imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 27. A quarantine of thirty days shall be enforced upon all sheep and goats imported from countries other than the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

SWINE.

Sec. 28. Swine imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no hog cholera,

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swine plague, or foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 29. A quarantine of thirty days shall be enforced upon all swine imported from countries other than the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

IMPORTATION OF ANIMALS FROM UNITED STATES AND NEWFOUNDLAND.

Sec. 30. All animals imported into the Dominion of Canada from the United States and Newfoundland must be accompanied by a statutory declaration or affidavit made by the owner or importer stating clearly the purpose for which said animals are imported, viz.:—Whether for breeding purposes, for milk production, for work, for grazing, feeding or slaughter, or whether they form part of settlers' effects, or whether they are entered for temporary stay, as provided by these regulations.

Sec. 31. Said declaration or affidavit must be presented to the Collector of Customs at the port of entry, who will decide whether the animals are entitled to entry under these regulations, and who will notify the Veterinary Inspector of the Department of Agriculture in all cases where the regulations require an inspection to be made.

HORSES, MULES AND ASSES.

Sec. 32. On and after March 1, 1907, the importation of branded or range western horses, mules and asses, other than those which are gentle and broken to harness or saddle, is prohibited.

Sec. 33. Horses, mules or asses, other than those comprising part of settlers' effects, shall be inspected and must be accompanied by :—

(a) A satisfactory certificate of mallein test dated not more than thirty days prior to the date of entry, and signed by an inspector of the United States Bureau of Animal Industry ; or,

(b) A similar certificate from a reputable veterinarian, provided such certificate is endorsed by an inspector of the said Bureau of Animal Industry ; or,

(c) A similar certificate from an inspector of the Canadian Department of Agriculture.

Sec. 34. When not so accompanied such horses, mules or asses must be submitted to the mallein test either at the quarantine station where entry is made, or, under certain restrictions, at point of destination.

Sec. 35. When tested at the port of entry, if any reactors are found they shall be slaughtered without compensation or definitely marked and returned to the United States, and must not again be presented for entry. All horses, mules or asses in the same consignment shall be returned to the United States, but the non-reactors may be again presented for entry and further test after the lapse of a period of not less than fifteen days from the date of the first test, provided that satisfactory evidence is produced to the effect that they have not, during the said period, been in contact with affected animals. When tested at destination points all animals reacting to the test will be slaughtered without compensation, while those comprising the rest of the shipment will be detained in quarantine until it is shown to the satisfaction of the Veterinary Director General that they are free from disease.

Sec. 36. Horses, mules or asses forming part of settlers' effects shall be inspected and should be accompanied by :—

(a) A satisfactory certificate of mallein test dated not more than thirty days prior to the date of entry, and signed by an inspector of the United States Bureau of Animal Industry ; or,

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(b) A similar certificate from a reputable veterinarian provided such certificate is endorsed by an inspector of the said Bureau of Animal Industry; or

(c) A similar certificate from an inspector of the Canadian Department of Agriculture.

Sec. 37. If not so accompanied such horses, mules or asses may be submitted to the mallein test by an inspector of the Canadian Department of Agriculture at any time after their arrival in Canada. If found to react within a period of six months of date of entry they will be destroyed without compensation.

Sec. 38. If on inspection at the boundary, glanders is found in any consignment, all animals comprising it shall be returned to the United States, but non-reactors may be again presented for entry and further test after the lapse of a period of not less than fifteen days from the date of the first test, provided that satisfactory evidence is produced to the effect that they have not, during the said period, been in contact with affected animals.

Sec. 39. Horses, mules and asses found to be, or suspected of being, affected with any contagious disease may be returned to the United States or otherwise dealt with as the Veterinary Director General may order.

CATTLE.

Sec. 40. All cattle shall be inspected, and if so ordered by the Minister, may be detained, isolated, submitted to the tuberculin test, dipped or otherwise treated, or in default of such order, where the inspector has reason to believe or suspect that animals are affected with or have been exposed to contagious or infectious disease.

Sec. 41. Cattle found to be diseased or suspected of being diseased may be returned to the United States or otherwise dealt with as the Veterinary Director General may order.

Sec. 42. Cattle for breeding purposes and milk production six months old or over, if unaccompanied by a satisfactory tuberculin test chart signed by a veterinarian of the United States Bureau of Animal Industry, must be detained in quarantine for one week or such further period as may be deemed necessary and subjected to the tuberculin test; cattle reacting thereto must be returned to the United States or slaughtered without compensation.

Sec. 43. Importers may be required to furnish a statutory declaration that the chart produced applies to the cattle it purports to describe and no other.

OTHER RUMINANTS.

Sec. 44. All sheep and goats shall be inspected, and, if so ordered by the Minister, may be detained, isolated, dipped or otherwise treated, or, in default of such order, where the inspector has reason to believe or suspect that the animals are affected with or have been exposed to contagious or infectious disease.

Sec. 45. Sheep or goats found to be diseased or suspected of being diseased may be returned to the United States or otherwise dealt with as the Veterinary Director General may order.

SWINE.

Sec. 46. All swine must be accompanied by a certificate signed by a veterinarian of the United States Bureau of Animal Industry, stating that neither swine plague nor hog cholera has existed within a radius of five miles of the premises in which they have been kept for a period of six months immediately preceding the date of shipment, but such swine shall nevertheless be inspected, and shall be subjected to a quarantine of thirty days before being allowed to come in contact with Canadian animals.

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Sec. 47. Swine found to be suffering from contagious disease may be slaughtered without compensation, returned to the United States, or otherwise dealt with as the Veterinary Director General may order.

IMPORTATION OF ANIMALS FROM MEXICO.

Sec. 48. Any person contemplating the importation of animals from Mexico must, in addition to all other requirements of this order, first obtain from the minister a permit stating the number and kind of animals to be imported, the district and state in Mexico whence they are to be shipped and the probable date of their arrival at the Canadian port of entry. The person applying for such permit shall furnish satisfactory proof of the facts hereinbefore set forth.

ANIMALS IN BOND.

Sec. 49. Animals passing in bond through United States territory for importation to Canada must be accompanied by a certificate of health signed by a veterinarian of the United States Bureau of Animal Industry, and by an affidavit from the owner or importer that the said certificate refers to the animals in question. Such animals shall nevertheless be subject to inspection and if necessary, to detention before being permitted to enter Canadian territory. If found diseased such animals are to be subject to and dealt with according to the orders of the inspecting officer under instructions from the Veterinary Director General.

The expense of treatment, should such be deemed advisable, must be borne by the owner or importer of the animals treated.

ANIMALS IN TRANSIT.

Sec. 50. Animals may be admitted from any part of the United States into Canada for transit to any other part of the United States in bond, and (with the exception of swine) will be admitted to Canada in bond for transit to any Canadian port for exportation by sea to Europe or elsewhere. Such animals are to be subject to inspection at the Canadian port of shipment.

Sec. 51. The transit of such animals shall be subject to such regulations as the minister shall, from time to time, prescribe.

ANIMALS FOR EXHIBITION.

Sec. 52. Animals, other than swine, may be admitted for purposes of exhibition only, on inspection at port of entry, subject to the usual customs regulations.

REGULATIONS OF QUARANTINE.

Sec. 53. Quarantine stations shall be under the care and subject to the orders of the officers appointed for that purpose hereinafter referred to as superintendents, who shall have the general superintendence and control of the servants or other persons, and of all other matters connected therewith.

Sec. 54. Animals in any quarantine station shall be treated and dealt with under the direction of the superintendent of the said station and all articles used for, about or in connection with the said animals shall be in like manner subject to his direction and supervision.

Sec. 55. Cattle six months old or over imported from countries other than the United States and Mexico shall not be discharged from quarantine until they have

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been submitted to the tuberculin test by the superintendent of the quarantine or other duly authorized officer.

Sec. 56. Cattle reacting to the tuberculin test, but not showing clinical symptoms, shall be permanently marked in the right ear with the letter 'T' by the officer making the test, and may then be released at the expiry of the prescribed period of quarantine if found free from all other infectious or contagious diseases.

Sec. 57. Cattle showing clinical symptoms of tuberculosis shall be destroyed or otherwise disposed of as the Minister may direct.

Sec. 58. The Minister or the Veterinary Director General may authorize the destruction of any quarantined animals or all or any portion of the articles used in the care of the said animals, and such destruction shall take place under the supervision of the superintendent, and in the manner prescribed by him.

Sec. 59. The expense of feeding, treating and providing for animals detained in quarantine, with the exception of those for the use of grounds and shelters, shall be borne by the owner or importer, and such expenses shall be paid before the animals are permitted to leave the quarantine, and in default of such payment within fourteen days after the expiration of the period of quarantine, the superintendent may, on fourteen days' notice in writing, delivered or sent by mail to the owner or importer, cause the said animals to be sold to meet the said expenses, together with the expenses of and incidental to the sale of the said animals, the balance, if any, to be handed over to the owner.

Sec. 60. No animal under quarantine shall be allowed to come in contact with any Canadian animal until duly discharged from quarantine.

Sec. 61. No animal under quarantine shall be removed from a quarantine station until duly discharged therefrom by the superintendent or other duly authorized officer.

Sec. 62. Any person removing or attempting to remove any animal from a quarantine station without the authority of the superintendent or other duly authorized officer, shall incur a penalty not exceeding \$200 for every such offence.

Sec. 63. No indemnity shall be allowed for any injury or loss sustained in connection with any animal while detained in quarantine.

EXPORTATION.

Sec. 64. Canadian animals for transit to any shipping port of the United States for export by sea to Europe or elsewhere must be inspected at such places in Canada as the Minister may, from time to time, designate; must not be shipped from the place of inspection until they have been certified by a duly authorized veterinary inspector to be free from infectious and contagious disease and otherwise fit for export, and must not be permitted by collectors of customs to leave Canada unless accompanied by such certificate.

Sec. 65. Animals for exportation by sea should, if possible, reach the port of exportation not less than twelve hours before shipment for rest and inspection. Animals failing to do so shall be liable to detention in the discretion of the inspector.

Sec. 66. Inspectors shall at all times have full power to detain animals for such time as they consider sufficient to enable them to make a thorough and satisfactory inspection and to ascertain that all the provisions of these regulations relating thereto have been duly observed and complied with.

Sec. 67. Owners or persons in charge of animals for exportation shall give twenty-four hours' notice, addressed to the inspector at his office, stating the number and kind of such animals and the expected time of their arrival at the port of exportation.

Sec. 68. No animals, except as hereinafter provided, shall be permitted to be placed on board any steamship or other vessel for exportation at any Canadian port until they have been inspected and approved by a duly authorized veterinary inspector at such port, and certified by him to be free from contagious disease and in every way fit for export; such inspection to be made within twenty-four hours of embarkation.

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Sec. 69. Inspectors shall, in the performance of their duties, have free access to any ship, car or other vehicle and to any yard, stable or place where animals may be found.

Sec. 70. All inspections for export must be made in daylight.

Sec. 71. Owners or shippers of stock during the progress of inspection at any port of exportation shall, with the means at their disposal, give every required assistance to the inspector at such port, and move the animals according to his directions. In case the owner or shipper refuses or neglects to furnish the necessary assistance, the inspector may employ men at the cost of the owner or shipper, and such cost shall be paid to the inspector before a clean bill of health is given.

Sec. 72. Any unauthorized interference with animals after inspection, whether by substitution or otherwise, or any other evasion, or misrepresentation, will be deemed a breach of these Regulations.

Sec. 73. Inspectors may, if they deem it advisable for purposes of identification, mark animals inspected by them. A certificate of inspection, stating the name of the owner, the number, sex and class of animals in the consignment and certifying to their freedom from contagious disease, will be furnished by the inspector, and must be produced to the Collector of Customs before embarkation.

Sec. 74. Such animals as may have been exposed to contagious or infectious disease, or affected with, or suspected of being affected with, contagious or infectious disease, shall be detained and dealt with according to the orders of the inspecting officer under instructions from the Veterinary Director General.

Sec. 75. Inspectors may reject animals for any reasonable cause.

Sec. 76. The Minister may from time to time order that the provisions of these Regulations requiring the inspection and certification as aforesaid, may be waived in the case of animals exported to any country when in his opinion such action is necessary and desirable.

Sec. 77. The Collector of Customs of any port in Canada whence animals are exported shall not give a clearance to any ship having animals on board for exportation, other than those exempted by Ministerial Order under the provisions of the preceding section, without having produced to him a certificate, signed by the inspector, to the effect that the animals therein referred to are free from contagious and infectious disease and in every way fit for shipment.

INFECTED VESSELS.

Sec. 78. Vessels which have carried cattle, sheep or other ruminants, among any of which 'Foot and Mouth Disease' shall have been found, shall be prohibited, for a period of sixty days thereafter, from loading cattle, sheep or other ruminants or swine, in any Canadian port; and, further, until such vessels shall have been thoroughly cleansed and disinfected, under the supervision of an inspector or other duly authorized officer.

CUSTOMS OFFICERS.

Sec. 79. Collectors of customs throughout Canada shall see that the various exigencies and requirements of the present order are fulfilled before granting any permit which requires, before it is given, any act to be performed, or any inspection or other proceeding to be made or taken, and they shall see that the prohibitions prescribed and rules established by this order as hereinbefore mentioned, and the instructions which may be issued by the minister are obeyed, and in case of any infraction of the provisions of the present order, or any of them, taking place, they shall report at once to the Minister the nature and extent of such infraction.

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GENERAL PROVISIONS.

Sec. 80. To provide against the possibility of diseased animals being carried from place to place, through Canadian territory, or conveyed to and shipped from ports, it is ordered as follows:—

An inspection of animals may be made at any place or time by any veterinary inspector under authority from the Veterinary Director General.

Sec. 81. Inspectors shall, in making such inspection, have free access to any vessel, car, yard, stable, shed or place which they may deem it necessary to enter.

Sec. 82. Such animals as may be found affected with or to have been exposed to contagious or infectious disease, shall be dealt with according to the provisions of the Animal Contagious Diseases Act, 1903.

Sec. 83. On infectious or contagious disease of animals being discovered on board any steamship, vessel or car, or in any stable, shed, yard or other place, it shall be the duty of the inspector, on the removal of the infected animal or animals, to superintend the thorough disinfection of such steamship, car, stable, shed, yard or other place, without loss of time, in the manner prescribed under the general regulations for disinfection of premises.

Sec. 84. All yards, stables, sheds, or other premises used (by railway or steamship companies or other persons) for the accommodation of animals shall be maintained in a clean, comfortable and sanitary condition and shall be subject at all times to inspection by inspectors acting under the authority of the Minister, who, when they deem such action necessary, may order the cleansing and disinfection in a satisfactory manner of the said yards, stables, sheds, or other premises as provided in the Animal Contagious Diseases Act, 1903.

Sec. 85. In the event of any owner, lessee or occupant of any yard, stable, shed or other premises (or any railway or steamship company or person) refusing or neglecting to carry out the orders of the inspector in regard to cleansing and disinfection as aforesaid or in the event of such owner, lessee or occupant, company or person neglecting to maintain his or its yards, stables, sheds or other premises for the use of animals, in a clean, comfortable and sanitary condition, the inspector may condemn the said premises as unfit for use, whereupon the said premises shall not be used for the accommodation of animals until such time as the orders of the inspector in regard thereto have been satisfactorily carried out.

Sec. 86. No animals are to be allowed to be placed on board cars till the litter from the previous load has been removed and the cars whitewashed with lime and carbolic acid, in the proportion of 1 pound commercial carbolic acid to 5 gallons of lime wash.

Sec. 87. Shippers may refuse to place their animals on uncleaned cars, and may lodge a complaint with the nearest inspector, who shall either cause such cars to be cleansed and disinfected, as above, at the expense of the railway company, or shall prohibit their use until they have been so cleansed and disinfected.

Sec. 88. Any person who violates any provision of the Animal Contagious Diseases Act, 1903, or any provision of this order, shall incur the penalties prescribed by the said Act.

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No. 16.

MANGE.

By Orders in Council dated July 10, 1905, and June 27, 1904.

Whereas the disease of Mange exists among cattle throughout those portions of the Territories of Assiniboia and Alberta which may be described as bounded by the international boundary, the Rocky Mountains and a line drawn as follows :—

A line from the Rocky Mountains along the southeastern boundary of the Stoney Indian reserve, then along the northeastern boundary of the said reserve to the main line of the Canadian Pacific Railway, thence easterly along the said line of railway to the line between ranges 5 and 6, west of the 5th meridian, thence north along that line to the line between townships 28 and 29, thence east along that line to the line of the Calgary and Edmonton Railway, thence north along the Calgary and Edmonton Railway to the line between townships 30 and 31, thence east along that line to the line between ranges 26 and 27 west of the 4th principal meridian, thence north along that line to the line between townships 34 and 35, thence east along that line to the Red Deer river, thence north along the Red Deer river to the line between townships 28 and 30, thence east along that line to the 4th principal meridian, thence south along the 4th principal meridian to the Red Deer river, thence along the Red Deer and Saskatchewan rivers to the line between ranges 7 and 8 west of the 3rd meridian, thence south along that line to the international boundary line.

And whereas it is of the greatest importance to the interests of stock owners and to the preservation of a profitable market for western cattle that the policy adopted last year (1904) with a view to the eradication of the disease in question should be continued

That after careful inquiry and due consideration it has been decided that the period between August 15 and October 31 is the most suitable and convenient for treatment with the above object.

Therefore the Governor General in Council, in virtue of the provisions of section 29, chap. 11, 3 Edward VII., intituled 'An Act respecting Infectious or Contagious Diseases affecting Animals,' is pleased to order that the above described tract of land shall be, and the same is hereby declared an infected place, and that all persons owning or being in charge of cattle within the above described tract must, during the said period, dip or otherwise treat such cattle in a manner satisfactory to the officers of the Department of Agriculture, provision being made that where it can be clearly shown to the satisfaction of the said officers that cattle, kept under fence in any well defined area or district within the said tract, are not affected with, and have not been in any way exposed to, the contagion of Mange, or have been, during the present season, treated in a satisfactory manner and subsequently kept isolated from all other cattle, the Veterinary Director General may, on the facts being reported to him, exempt such area or district from such compulsory treatment, but this provision shall in no case apply to cattle kept on the open range, or on unfenced land.

Satisfactory treatment shall consist of immersion for not less than two minutes in a solution of lime and sulphur of a strength of not less than 10 pounds of lime and 24 pounds of sulphur to 100 gallons of water prepared according to the directions of the officers of the Department of Agriculture.

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(2) Cattle imported from the United States into the said tract destined for points in Canada outside thereof may, under compliance with the quarantine regulations, and with the provisions of the next preceding section hereof, be permitted to pass without unnecessary delay through the said tract direct to their destination without further restriction.'

'Every veterinary inspector, and every person duly authorized by a veterinary inspector shall have full power to order animals affected or suspected of being affected with mange to be collected for inspection and, when necessary, to be detained, isolated or treated in accordance with the instructions of the Veterinary Director General.

The expenses of and incidental to such collection, isolation and treatment, shall be borne by the owners of the animals, and if advanced by the inspector or other authorized person shall, until paid, be a charge upon the said animals, without prejudice however to the recovery of any penalty for the infringement of these regulations.

If such expenses are not paid within twenty days of the time when they have been incurred, the inspector or other duly authorized person may proceed to sell the said animals by public auction after giving to the owner ten days' notice in writing of such intention to sell, which notice may be effectually given, where the owner is known, by delivering the same to him personally or by sending it by mail addressed to him at his last known place of residence. Where the owner is unknown, such notice may be effectually given by publication in one issue of a newspaper published or circulating in the district where such animals are detained. The proceeds of such sale shall be applied first in payment of the reasonable expenses of the collection, isolation, treatment, giving of notice and conduct of sale, and the balance, if any, shall be paid to the owner of said animals on demand. Any balance not so paid shall be remitted to the Minister, and if not claimed within twelve months from the date of sale shall be paid to the credit of the Receiver General.'

The amount charged for the treatment of stray cattle, or of cattle whose owners neglect or refuse to comply with the above orders, so far as they refer to treatment, shall in no case exceed twenty-five cents per animal for each dipping or application, provided that where it is necessary to collect such animals and to hold them for the second dipping or application, an additional sum of one dollar per animal may be collected.

The department assumes no responsibility for injury or loss to cattle incurred through compliance with the provisions of these orders as regards treatment.

All persons engaged in breeding, exporting, dealing in, driving or shipping cattle, and all transportation companies, are requested to co-operate with this department in enforcing the above provisions.

Outbreaks occurring outside of the area defined above will be dealt with under the general Order in Council, dated June 27, 1904.

No. 17.

TOBACCO.

(REPORT OF F. CHARLAN.)

OTTAWA, March 31, 1907.

SIR,—I have the honour to submit the following report of the work of the Tobacco Division, from April 1, 1906, to March 31, 1907.

During the winter of 1905-6, an experiment in the curing of Canadian tobaccos had been carried on at the establishment of the Dominion Tobacco Company, Montreal, the experiment being concluded about the middle of May, 1906. Samples of the cured products were submitted to numerous Canadian manufacturers for criticism. It was our idea that such criticism, in the aggregate, should enable us to obtain products which should be as satisfactory as possible to the manufacturer, thereby improving the situation of the grower through an increase in the consumption of natural leaf.

The results of the experiment, and of the opinions of interested experts, referred to, were enumerated in a report which I had the honour to submit to you in September last.

Despite statements to the contrary, it may be definitely and positively asserted that Canadian tobaccos possess first-class qualities, and that the prospects of the industry in Canada are very bright.

A favourable criticism was received also from the experts of the French tobacco administration, to whom a larger sample had been sent. Exportation, however, is out of the question at present, owing to the general condition of our products, and the high prices paid in our own home markets.

An endeavour was made to encourage the growing of varieties yielding products suitable for the manufacture of cigars, as binders or fillers, American tobacco seed being distributed for this purpose amongst the agricultural clubs of Quebec in the spring of 1906.

Canada imports annually from Wisconsin and Connecticut large quantities of leaf tobacco, for the manufacture of cigars. It would be interesting to ascertain if our country is able to produce similar tobaccos, and by such production be exempt in the near future from the heavy tolls actually paid to Wisconsin, Pennsylvania and Connecticut.

With a view to such production, experimental plots were established in those parts of Canada where farmers were already accustomed to the growing of smoking tobacco, particularly in the counties of Montcalm and Rouville. A similar trial was also undertaken on a plot of the Central Experimental Farm.

These experiments were seriously interfered with by the prolonged drought which prevailed during the summer of 1906. However, such as they were, they proved beyond a doubt that the varieties Havana Seed Leaf and Comstock Spanish may be grown with success in Canada and will yield very satisfactory products.

On the trial plot at the Central Experimental Farm, yields were obtained averaging from 1,400 to 1,800 pounds per acre, according to the distances at which the plants had been set. It should be noted, however, that these yields were arrived at by calculating on the basis of a plot free from bare spots. Moreover, the land was more heavily

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manured than the average of the lands under tobacco cultivation in Canada. But the fact remains that the yields in this country could easily be increased without much extra cost, thus greatly improving the profits of the farm.

Some farmers in Ontario were induced to undertake experiments in hilling and thinning operations, which, generally speaking, are not practiced in that province. Here, again, the drought interfered with our work, and the conditions threatening to be very unfavourable for the carrying on of these experiments, the growers voluntarily gave up the work. In Essex county, the presence of large quantities of cutworms was another cause of the discontinuation of the trials.

The fall of 1906 was eminently favourable for ripening and drying, and contributed in a large measure to the success of the crop, which looked very doubtful at the beginning of the summer. Careful growers were able to observe the advantages of proper curing. In a normal year, curing cannot be done properly unless the crop is harvested early, that is, by the 15th September, and consequently the plants must be set out at as early a date as possible.

The manufacturer to whom the crop obtained on the Central Experimental Farm was sold, greatly appreciated the grading of the products. However, this crop was only rapidly sorted at the time of stripping, as soon as the drying was completed and before being handed over to the manufacturer. But, compared to the condition in which leaf tobacco generally is, as presented by the farmers of the country, the crop in question seemed graded. This favourable appearance of the shipment enabled us to obtain a price a little above the average, and that before the opening of the market of 1906-7 (November, 1906).

As a result of the campaign of 1906, a larger quantity of fine smoking tobaccos was produced in the counties of Montcalm and Rouville. These products were noticed by the manufacturers, in the course of visits in Rouville, and at the annual exhibition of St. Jacques de l'Achigan (Montcalm). They will, to a large extent, bear comparison with the products which we were trying to imitate.

The year 1906 was too dry for the best results in the growing of light tobaccos. Owing to the inferior development of the products, the yield, in many cases, was unsatisfactory. Nevertheless, the increased demand for these tobaccos shows conclusively that they may, with advantage, take the place of imported tobaccos of a similar nature, and we may expect to see them grown on a larger scale in the future.

This encourages the continuation of experiments, and the dissemination of results obtained. There can be no doubt that the present work is a splendid object lesson to the Quebec farmers, of the advantages of growing products suitable for the manufacturer; a phase of the industry which has long been neglected owing to the lack of a suitable market.

The methods which we are recommending are intended to meet the needs of the present time in the districts chiefly engaged in the growing of smoking tobaccos (also called black tobaccos). With moderately close planting, and early topping, it will be possible to secure a heavier yield to the acre, as well as lighter and finer products of improved quality. Thus the farmer will gain both in the yield and the average price of the product—two elements of prosperity.

We hope to make such an improvement in our home tobaccos that they will be entirely acceptable to the Canadian industry, and thus, through the resultant increased consumption, avoid the over-production which unfortunately has begun to be felt in some parts of the country.

A bulletin treating of 'the growing of tobacco in general (Bulletin No. 3), has been prepared in order to meet the demand for general information addressed to the Department of Agriculture. The spring of 1907 has been spent in planning the series of experiments and trials which is to be carried on in the course of the present year.

Towards the end of the last session of parliament, I was called upon to give evidence before the Standing Committee on Agriculture and Colonization, on the

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subject of the tobacco industry in Canada. Twenty thousand copies of this evidence are to be printed for general distribution.

I have the honour to be, sir,

Your obedient servant,

G. CHARLAN,

Chief of the Tobacco Division.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 18.

REPORT OF THE CANADIAN EXHIBITION COMMISSIONER TO THE
MILAN INTERNATIONAL EXHIBITION, 1906—MILAN, ITALY.

The Milan International Exhibition was held principally to celebrate the opening of the Simplon Tunnel, by which an important additional line of railway now connects the European systems with those of Northern Italy, the accomplishment of this gigantic engineering undertaking was a matter of international concern, and it was fitting that it should be celebrated in a manner commensurate with its importance. While the arts, industries and sciences were adequately represented in the exhibition, the section relating to 'transportation by land' was appropriately enough, one of the principal features of the undertaking, in fact, by the original project, the exhibition was to have been limited to land and sea transportation, the two great industries chiefly affected by the opening of the new tunnel, which is 12½ miles long—the longest in the world.

This exhibition was the first undertaking of this kind ever attempted in this country, having an international character, and the geographical position of Milan—the commercial capital of Italy—in relation to neighbouring countries, and the large measure of international support that it received, made the exhibition one of first importance, not only to Italy itself, but to those other countries which were interested in maintaining and extending their commercial relations with that country.

The exhibition was promoted under the most promising auspices, for it was not only under government and municipal patronage, but was supported by substantial money grants by the state and municipality.

The sites of the exhibition were within easy access of the city of Milan, lying to the northwest of it, and included a portion of the public park and the Piazza d'Armi; these were connected by an overhead electric railway specially built for the purpose; the area of the grounds was 990,000 square metres, of which about 250,000 metres were covered by buildings.

The exhibition was divided into ten principal sections, nine of which were international and one national, as follows:—

1. Transportation by land.
2. Transportation by water.
3. Social Economy.
4. Manufacturing and Decorative Arts.
5. Working Exhibits (Machinery).
6. Retrospective Transportation.
7. Fisheries and Pisciculture.
8. Agriculture.
9. Hygiene.
10. Fine Arts (National).

There were also short term exhibits throughout the whole period of the exhibition. These included Live Stock, Horticulture, Dairy Produce, &c.

The comprehensive character of the exhibition may be realized from the fact that there were 267 groups and 1,186 classes.

The international character of the exhibition will be gathered from the large number of countries participating, which included Great Britain, France, Germany, Aus-

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tria, Belgium, Hungary, Switzerland, Holland, Norway, Sweden, Spain, Portugal, Russia, China, Japan, Greece, Montenegro, Bulgaria, the Argentine, Persia, Peru, Roumania, Brazil and Turkey. Canada was the only British colony represented.

CANADA.

As has been usual of late years, Canada in participating did so in a building of her own, including therein all her exhibits, instead of dividing them up in the various special buildings allotted to the different products; in this manner the whole exhibit was directly under our own control, and the various products were so placed and installed as to blend in a harmonious whole.

The Canadian pavilion was a frame building covered in galvanized iron (corrugated); it was 96 by 160 feet, the four corners rising in towers, an entrance and an exit being provided in one of the shorter sides. This proved very valuable when the large excursions came—and they were numerous—as it avoided much inconvenience and possible trouble, for at times the crowds were so great they had to be handled with the utmost care. The only exterior decoration was a series of large maple leaves, at intervals, in gables round the building. These were coloured with autumnal tints and were much admired. The building was divided on both sides into a series of alcoves 15 by 20 feet, in each of which was placed a specific exhibit; an extension at the end contained the panorama of the west and the specimens of game and fur-bearing animals. To the left of this were the offices, and in the centre the larger exhibits, as described later.

THE AGRICULTURAL EXHIBIT.

Consisted principally of the grains, threshed and in the straw, grasses, tobacco, and a great variety of food products, natural and manufactured. The grains in straw and grasses were used as the decorative features of the whole building, being festooned and arranged in various designs, as well as to form frames, panels and many other figures. In connection with this exhibit, a series of large paintings were exhibited. These were enlargements from photos of Canadian farm scenes, including ploughing, harvesting, threshing, stacking, old and new homesteads, cattle, horse and sheep ranches. The enlargements were made on linen by a patent process, and hand-coloured. In day time they are fine oil paintings, while at night they are beautiful and attractive transparencies. In some of the alcoves the threshed grain in glass jars was prominently exhibited, all the numerous varieties of wheat, oats, corn, barley, rye, beans, pease, and grass seeds, tobacco, maple sugar and syrup, honey, tinned milk, cream, vegetables of all kinds, and many other food and agricultural products, such as flour, cereal foods, &c. A certain number of agricultural implements were also shown in this section.

THE HORTICULTURAL EXHIBIT.

This exhibit contained a great number of the numerous varieties of apples for which Canada is now so favourably known; those displayed on plates in their natural state were the subject of many expressions of wonder, and certainly did their share in causing the exhibit to become so well and favourably known. A shipment of new apples received in the early autumn was distributed among the leading notabilities and officials connected with the exhibition, as well as at Rome, and were the cause of many very favourable expressions of wonder, the general trend of these expressions being that the fruit was better flavoured, and had more aroma than the local fruit, which they did not seem to understand. There were also many varieties of these apples preserved in antiseptics, as well as a number of varieties of pears, peaches, plums, quinces, apricots, strawberries, gooseberries, raspberries, currants, and many others too

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numerous to mention. All these and others were also exhibited tinned and preserved. As a background to this exhibit a large painting showing a shipping scene at a Canadian port was prominently displayed, and much commented on. This exhibit was the subject of many expressions of astonishment, the impression in southern Europe being that Canada could not produce such fruit as that exhibited, more especially the grapes, peaches and pears, and it certainly very effectively dispelled many erroneous ideas of the climate of the country.

ECONOMIC MINERALS.

This exhibit was as effective and surprising as that of the horticultural section; few people had any conception of the great number of our economic minerals and the vast quantities we have of them. Those most in evidence were nickel, mica, corundum, asbestos, cobalt, coal, iron, copper, graphite and silver. These were distributed according to the size of the exhibit. Those specimens of small size were displayed in the special knock-down show table cases we had specially constructed for this purpose, the larger specimens, such as asbestos and nickel, were placed in pyramids, showing the crude mineral as it occurs, as well as the various forms in which it is manufactured from the raw material to the finished product. Many expressions of surprise were used by importers when they ascertained that mica was essentially a Canadian product, as they procured their stock from New York and were sure it was of United States origin. The same remarks were made about our nickel, asbestos and other minerals. The placer gold collection proved a very attractive feature, as did also the nuggets and rich quartz displayed in a safe under a specially constructed mineral trophy.

Some of our figures—prominently displayed—giving the production of minerals as ranging in some cases from 60 to 95 per cent of the world's production were much commented on and in certain cases statistical information had to be supplied to bear out the statements.

FORESTRY.

In this section the leading varieties of Canada's immense timber resources were very prominently displayed; the pulpwood was placed in a large pyramid showing the wood both with and without the bark, chipped, in the pulp and paper—these latter set in and on the pyramid, to complete the whole. The many varieties of the leading constructional woods as well as the cabinet-making varieties were all shown, some in the trunk, others in sections, squared, in deals, boards, &c. Panels were also shown as well as boards highly polished, doors, sashes, bent wood, hubs, lath, lasts, and many other manufactures, the varieties being pine, spruce, fir, tamarac, birch, maple, cherry, walnut, ash, cedar, elm, oak, hickory, basswood, sycamore, &c.

FAUNA.

As already stated, at the end of the building a space 60 by 20 contained a panorama of the west and specimens of certain game and fur-bearing animals; the foreground of this inclosure was filled in by all the animals exhibited, comprising elk, moose, caribou, buffalo, wapiti, mountain sheep and goat, grizzly bear, brown and black bear, polar bear, musk-ox, wolf, red fox, white fox, blue fox, badger, fisher, beaver, lynx, marten, mink, skunk; also some water fowl; for the background a painted scene 90 by 15 illustrated the great Canadian west, beginning at one side with a typical farmhouse and yard with a small lake in front; adjoining this a scene of activity, with reapers at work, another showing the newcomer breaking the prairie, then a large herd of cattle representing a ranch with cow-boys, further on a horse ranch, then a mountain scene losing itself in the woods and northern forest. The artistic effect of this

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scene especially strikes one by its depth, showing as it does the unlimited expanse of prairie. This whole scene was the most striking feature of the exhibition.

READING MATTER.

Throughout the whole exhibit, on panels, posts, easels and wherever a convenient spot presented itself, a salient fact or striking figure of Canada's importance and progress were displayed. These were in nearly all cases in Italian, English and French, and were very largely copied and used by many interested visitors.

Then a large quantity of literature was distributed in the three languages already mentioned; this was of the usual description and was much sought for; a very large number of letters being received asking for copies. The pamphlets were greatly prized and it was a very rare thing to see a copy left lying in the grounds, as often occurs at exhibitions generally.

EMIGRATION.

In opening the exhibit in Italy some fear was expressed that we might find the Royal Italian Emigration Commission adverse to our display, as it seemed to be generally thought the main object of the exhibit was to carry on a huge emigration scheme, which is not permitted in the country, all this work having to be done through the commission already referred to; the exhibit, however, seems to have spoken for itself as a large and general exhibit of our country and its natural products. Care was, however, taken to furnish the Emigration Commissioners with copies of our literature and inquiry made if there was any objection to its distribution. The commissioners not only offered no objection to its distribution, but after careful perusal undertook—should we at the close of the exhibition have any literature remaining over—to distribute it for us and in the most judicious manner possible, and in such a way as to give the most direct beneficial results.

Senator Bodio, Admiral Reynaud and Commendatore Rossi, the active members of the commission, were all very much interested in our exhibit and asked for a great deal of information about Canada, more especially from an emigration point of view.

There were quite a large number of inquiries from farmers of Northern Italy who would like to go to Canada, but as this section of Italy has in the past furnished the greater number of emigrants to the Argentine Republic, it was a serious question with them to go to a country with which there was not a direct line of steamship communication, as is the case with almost all the other American countries, besides which the representatives of the lines running to other American countries did all in their power to divert traffic to their own lines and to the disadvantage of Canada.

COMMERCIAL INQUIRIES.

The number of commercial inquiries received was very large and extended over the whole range of our exhibits. In fact we received inquiries for articles which were not on exhibit, notably, one merchant on coming in noticed a 20-foot maple leaf made in grains. He immediately inquired what it represented, and on being told it was the maple leaf, asked if rubber shoes bearing the trade mark of the maple leaf were made in Canada and was very much surprised to receive the answer in the affirmative. He then explained that he was buying rubbers with this trade mark, but had been getting them from Germany, and now that he knew they came from Canada he would be able to enter into direct relations with the Canadian firms.

The same remarks were made about mica, asbestos and other products which were supposed in every case to be of United States origin. Timber, coal and iron were also largely inquired for. In every one of these cases all the information sought for was

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granted, and where addresses were asked it was invariably the rule to give a series of names, always placing them in alphabetical order, and where there was an uncertainty as to the advisability of giving names, the inquirer was referred to the secretaries of the different boards of trade or produce exchanges in the leading cities.

The exhibition closed before there was really any time to judge of tangible results in this branch, but a number of cases are known where correspondence had been entered into and appearances indicated that commercial relations would be established in at least a number of lines.

ATTENDANCE.

The attendance at the exhibition was particularly large, and was not confined to the Italians of the immediately surrounding country, but included a very large number from Switzerland, France, Austria, Hungary and other surrounding states. The Canadian pavilion was, in thousand of cases, asked for at the entrance, and the building was almost constantly full of visitors, at times it being necessary not only to watch and control the crowd but to close the entrance door for short periods to avoid possible crushes.

Apart from the very large number of sightseers, we were favoured with visits from His Majesty King Victor Emmanuel and Queen Helena; also the Queen Margherita, who visited us on three different occasions, besides a number of other princes and princesses of the royal blood. We also were honoured with visits from the majority of the ministers forming the Italian cabinet, notably the Prime Minister, Signor Giolitti; the Minister of Foreign Affairs, Signor Tittoni; the Minister of Agriculture, Signor Cocco-Ortu. All of these we had the pleasure of receiving in the office, and they conversed very freely about our exhibit, eulogizing it and asking many leading questions of importance in connection with the country in general. The Minister of Agriculture emphasized his approval by instructing all the deputy ministers of his department to be sure and visit the Canadian exhibit, which, to our knowledge, a number of them did.

The Papal Delegate to Canada, His Excellency Mgr. Sbaretti, who was sojourning in Italy, also did us the honour of visiting our pavilion, and, much to our gratification, made it his headquarters during his stay in Milan.

A large number of clergymen of all denominations sought much information, as did also a great many teachers who seemed desirous of obtaining all the details possible with a view of imparting it to their scholars, and using it in their schools generally.

The press was also favourably impressed with our exhibit, and their comments were not only liberal but flattering.

AWARDS.

The exhibition was a competitive one, and, as already stated, was divided into a large number of groups and sections. The Canadian exhibit was, however, placed *hors concours*, but, notwithstanding this, the collective jury unanimously decided that a prize should be offered to Canada, not only for its collective exhibit, but for the general display and the manner of decoration. We were therefore in this manner awarded the highest prize available, viz., a 'Grand Prix.'

In conclusion, it is a pleasant duty to acknowledge with thanks the many and kindly courtesies extended to our staff by all the officials of the exhibition, with many of whom we were in constant contact, not only officially, but in a social way, during the course of the exhibition, and who spared no efforts to make our stay as pleasant and agreeable as possible.

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I also deem it my pleasant duty to give expression of thanks to the members of the staff, all of whom performed their duties in a most competent and painstaking manner, sparing themselves no amount of trouble in seconding my efforts to make the exhibit a permanent and creditable success for the country.

WM. HUTCHISON.

The Honourable

The Minister of Agriculture,
Ottawa.

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